

## SonicWall® SonicWave 231c

### Draft Quick Start Guide

Regulatory Model: APL44-OCF

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## Capabilities and Components

The SonicWall® SonicWave 231c is a ceiling-mountable wireless access point suitable for indoor single-unit or multi-unit deployments. It provides 2x2 MIMO spatial streams for the 802.11b/g/n/ac radio module, with dual 2.4GHz and 5GHz radios, and one 1GbE LAN port. It has internal antennas, and is powered with 802.3at compliant PoE.

#### SonicWave 231c Hardware Components

Component	Number or Description
1GbE LAN port	1 Ethernet LAN port, 10/100/1000bps
USB 2.0 port	1
Radios	2x2 802.11n + 2x2 802.11ac MU-MIMO
Scanning radio	Third radio dedicated for scanning
Bluetooth	Bluetooth Low Energy (BLE) radio
Antenna type	Internal
Antenna quantity	6 (2.4Ghz x 2 / 5Ghz x 2 / BLE x 1 / Scan Radio x 1)
Power source	802.3at PoE (standard, PoE sold separately)
Chassis	Rectangular, Plenum rated
Operating temperature	0° to 40°C

The dedicated scanning radio scans the wireless channels for current connections and helps determine the least crowded channels when a wireless device attempts to connect.

## SonicWave 231c Ports and LEDs

The LAN POE port is on the back panel of the SonicWave 231c. This is where you connect the access point to the PoE injector or PoE-enabled switch. When the access point is installed, the back panel is attached to the ceiling mount hardware.

#### SonicWave 231c Back Panel



LAN/POE Port

The side panel of the SonicWave 231c has the LED indicators and the USB port.

#### SonicWave 231c Side Panel



## Connecting PoE to the SonicWave 231c

The SonicWave 231c is powered through Power over Ethernet (PoE), and should be connected with CAT5e or higher rated Ethernet cabling (max length 100 meters). A multi-gigabit 802.3at compliant PoE injector or PoEcapable switch is required to provide power to the SonicWave 231c.

**To connect a PoE injector to the SonicWave 231c:**

- 1 Using an Ethernet cable, connect the **Data In** port on the SonicWall PoE Injector to an existing WLAN zone interface on the SonicWall firewall or to an unused interface to be configured later in SonicOS.
- 2 Using a second Ethernet cable, connect the **Data and Power Out** port on the SonicWall PoE injector to the **LAN/POE** port on your SonicWave 231c.
- 3 Plug the power cord of the SonicWall PoE injector into an appropriate power outlet.
- 4 Wait for the **LAN LED** on the SonicWave 231c to illuminate. This indicates an active connection.

## Installation Safety Requirements

*The following conditions are required for proper installation:*

- 1 Mount in a location away from direct sunlight and sources of heat. A maximum ambient temperature of 104° F (40° C) is recommended.
- 2 Route cables away from power lines, fluorescent lighting fixtures, and sources of noise such as radios, transmitters, and broadband amplifiers
- 3 Ensure that no water or excessive moisture can enter the unit.
- 4 Allow unrestricted airflow around the unit and through the vents on the side of the unit. A minimum of 1 inch (25.44mm) clearance is recommended.
- 5 Consideration must be given to the connection of the equipment to the supply circuit and that the effect of overloading the circuits has minimal impact on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings must be used when addressing this concern.
- 6 This equipment is not intended for use at workplaces with visual display units, in accordance with §2 of the German ordinance for workplaces with visual display units. To avoid incommoding reflections at visual display workplaces, this device must not be placed in the direct field of view.

## Cable Connections

All Ethernet and RS232 (Console) cables are designed for intrabuilding connection to other equipment. Do not connect these ports directly to communication wiring or other wiring that exits the building where the appliance is located.

## Power Supply Information

When this product's power is provided by the Ethernet cable plugged in to the "LAN" port, this is called "Power over Ethernet" or "PoE." The PoE source should only be UL listed marked "Class 2" or "LPS" with an output rated 48 VDC, minimum 0.3 A, Tma: minimum 40 degrees C.

When powering via external power adapter via barrel jack, use only UL Listed power supply marked "Class 2" or "LPS" with output rated 12Vdc, min. 2.0A, Tma: minimum 40 degrees C°.

## Exigences relatives à l'installation

**AVERTISSEMENT :**

Les conditions suivantes sont requises pour une installation correcte :

1. Procédez au montage dans un endroit à l'abri des rayons du soleil et des sources de chaleur. Une température ambiante maximale de 60 °C (140 °F) est recommandée.
2. Faites passer les câbles à une distance raisonnable des lignes électriques, des luminaires pour lampes fluorescentes et des sources de bruit telles que les radios, les émetteurs et les amplificateurs à large bande.
3. Veillez à éviter tout contact de l'appareil avec de l'eau ou une humidité excessive.
4. Veillez à ce que l'air puisse circuler librement autour de l'appareil. Laissez un espace d'au moins 25,44 mm.
5. Portez une attention particulière au raccordement de l'équipement au circuit d'alimentation, de manière à ce qu'une éventuelle surcharge des circuits ait un impact minime sur la protection contre les surintensités et sur les câbles d'alimentation. Respectez pour cela les mentions figurant sur la plaque d'identification du produit.
6. Cet équipement n'est pas conçu pour être utilisé dans les espaces de travail munis d'écrans, conformément au § 2 de l'ordonnance allemande relative aux espaces de travail munis d'écrans. Afin d'éviter les réflexions inconfortables dans les espaces de travail munis d'écrans, cet appareil ne doit pas être placé directement dans le champ de vision.

## Raccordements

### AVERTISSEMENT :

RS232 (console) sont conçus pour un raccordement intrabâtiment à d'autres appareils.

Les câbles RS232 (console) sont conçus pour un raccordement intra-bâtiment à d'autres appareils. Ne reliez pas ces ports directement à des câbles de communication ou à d'autres câbles qui sortent du bâtiment dans lequel se trouve l'appareil.

## Informations sur l'alimentation électrique

Lorsque ce produit est alimenté par le câble Ethernet connecté au port "LAN1"; ce type d'alimentation est appelé "Power over Ethernet" ou "PoE" (Power over Ethernet). La source d'alimentation par câble Ethernet (PoE) utilisée doit impérativement être homologuée UL, porter la mention « Classe 2 » ou « LPS », et avoir une puissance de sortie nominale de 48 V CC, 0,3 A minimum, TA : 40 °C minimum.

Lors de l'alimentation via un adaptateur d'alimentation externe via une prise à barillet, utilisez uniquement une alimentation homologuée UL portant la mention « Classe 2 » ou « LPS » avec une sortie nominale de 12 Vcc, min. 2.0A, Tma: minimum TA : 40 °C.

# Anforderungen an die Installation

## Verwarnung:

Für eine ordnungsgemäße Montage sollten die folgenden Hinweise beachtet werden:

1. Wählen Sie für die Montage einen Ort, der keinem direkten Sonnenlicht ausgesetzt ist und sich nicht in der Nähe von Wärmequellen befindet. Die Umgebungstemperatur darf nicht mehr als 60 °C betragen.
2. Führen Sie die Kabel nicht entlang von Stromleitungen, Leuchtstoffröhren und Störquellen wie Funksendern oder Breitbandverstärkern.
3. Stellen Sie sicher, dass das Gerät vor Wasser und hoher Luftfeuchtigkeit geschützt ist.
4. Stellen Sie sicher, dass die Luft um das Gerät herum zirkulieren kann. Hier ist ein Belüftungsabstand von mindestens 26 mm einzuhalten.
5. Prüfen Sie den Anschluss des Geräts an die Stromversorgung, damit der Überstromschutz sowie die elektrische Leitung nicht von einer eventuellen Überlastung der Stromversorgung beeinflusst werden. Prüfen Sie dabei sorgfältig die Angaben auf dem Aufkleber des Geräts. Überlasten Sie nicht den Stromkreis.
6. Dieses Gerät ist nicht zur Verwendung an Arbeitsplätzen mit visuellen Anzeigegeräten gemäß § 2 der deutschen Verordnung für Arbeitsplätze mit visuellen Anzeigegeräten vorgesehen. Um störende Reflexionen am Bildschirmarbeitsplatz zu vermeiden, darf dieses Produkt nicht im unmittelbaren Gesichtsfeld platziert werden.

## Verwarnung Kabelverbindungen

RS232-C-Kabel eignen sich für die Verbindung von Geräten in Innenräumen. Schließen Sie an die Anschlüsse der SonicWall keine Kabel an, die aus dem Gebäude herausgeführt werden, in dem sich das Gerät befindet.

## Informationen zur Stromversorgung

Wenn die Stromversorgung durch das Ethernet-Kabel in die "LAN1" Anschluss angeschlossen vorgesehen ist, wird dies als "Power over Ethernet" oder "PoE." Dieses Produkt darf nur in Verbindung mit einem für den Europäischen Markt genehmigten und mit dem Logo „LPS.“ Ausgang: 48 VDC Gleichspannung, mind. 0,3 A, mindest TMA mindestens 40° Grad C, betrieben werden.

Wenn dieses Produkt sollte nur mit einem für den Europäischen Markt genehmigten Netzteil mit dem Logo "I.T.E. LPS" und einer Ausgangsleistung von 12 VDC, mind. 2.0 A, Tma: mind. 40 Grad C, betrieben werden.

## EU and EFTA

This SonicWall appliance contains radio equipment to provide 2.4 GHz and 5 GHz RLAN/WLAN. To maintain Radio Equipment Directive 2014/53/EU compliance, use only SonicOS software and accessories provided with this appliance and by SonicWall.

Diese SonicWall Appliance enthält Funkanlagen zur Bereitstellung von RLAN/WLAN im Frequenzbereich von 2,4 GHz und 5 GHz. Verwenden Sie zur Einhaltung der Funkanlagenrichtlinie 2014/53/EU (Radio Equipment Directive – RED) ausschließlich SonicOS Software und Zubehör, das mit dieser Appliance und von SonicWall bereitgestellt wird.

To maintain safe exposure levels to electromagnetic fields, place appliance a minimum of (30) cm from all persons and domestic animals.

Zur Einhaltung unbedenklicher Expositionswerte durch elektromagnetische Felder sollte sich die Appliance mindestens (TBD) cm von Personen und Haustieren entfernt befinden.



This SonicWall wireless appliance is restricted to indoor use. Diese SonicWall Appliance ist auf die Nutzung in Innenräumen beschränkt.

### Frequency

#### Band Maximum Radio-Frequency Power Transmitted

MHz	dBm EIRP
2412 - 2472	TBD dBm
5180 - 5240	TBD dBm
5260 - 5320	TBD dBm
5500 - 5700	TBD dBm

## FCC ID: 2AKCZ-OCF

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

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

**(i)** **NOTICE:** The FCC regulations provide that changes or modifications not expressly approved by SonicWall Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the system with respect to the receiver.
- Move the system away from the receiver.
- Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of SonicWall Inc. or an experienced radio/television technician for additional suggestions.

**i** **NOTE:** This SonicWall Wireless WLAN device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Any other installation or use will violate FCC Part 15 regulations. Modifications not expressly approved by SonicWall could void your authority to operate the equipment.

The following information is provided on the device or devices covered in this document in compliance with FCC regulations:

- Product name:  
SonicWall SonicWave 231c  
Regulatory Model: APL44-OCF
- Company name:  
SonicWall Inc. is the responsible party for this product. For an EMC compliance issue or a regulatory inquiry, please use the following contact information:  
SonicWall Inc.  
1033 McCarthy Boulevard  
Milpitas, California 95035 USA  
408-745-9600


## Radiation exposure statement (FCC)

**⚠ CAUTION:** The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, this device should be used in such a manner that the potential for human contact during normal operation is minimized. This device has been evaluated for and shown compliant with

the FCC RF Exposure limits under mobile exposure conditions (antennas are greater than 30 cm from a person's body). Details of the authorized configurations can be found at <https://fjallfoss.fcc.gov/oetcf/eas/reports/GenericSearch.cfm> by entering the FCC ID number on the device.

## United States of America authorized channels

SonicWall declares that the APL44-OCF (FCC ID: 2AKCZ-OCF) when sold in the USA is limited to CH1-CH11 by specified firmware controlled in the USA.

 **CAUTION:** This device is restricted to indoor use due to its operation in the 5.15GHz to 5.25GHz frequency range. The FCC requires this product to be used indoors for the frequency range 5.15GHz to 5.25GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High power radars are allocated as primary users of the 5.25GHz to 5.35GHz and 5.65GHz to 5.85GHz bands. These radar stations can cause interference with this device or can cause damage to this device, or both.

The APL44-OCF device has been designed to operate with an internal antenna. Antenna is not user accessible.

Dynamic Frequency Selection (DFS) is required on all Wireless LAN Master devices (usually Access Points) and Wireless LAN Clients (usually Wireless NICs) that operate within 5470MHz – 5725MHz. SonicWaves that have these frequencies and channels enabled in this range comply with North American and International DFS requirements. Some frequencies are blocked, and cannot be selected by the user per each specific regional approval.

Specific to the USA, at the urging of the Federal Communication Commission (FCC) user/installers should avoid operation frequencies near Terminal Doppler Weather Radar (TDWR) systems frequencies 5600-5650 MHz when installing a SonicWave within 35km of line-of-site of TDWR sites. If TDWR is within 35km the SonicWave, frequencies should be set to at least 30MHz above or below any TDWR system frequency at that site. TDWR locations and specific frequencies used can be found at <http://spectrumbridge.com/udrs/home.aspx>. Detailed current and background information can be found at [http://www.wispa.org/?page\\_id=2341](http://www.wispa.org/?page_id=2341).

## FCC, Class B

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been



tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

**i** **NOTICE:** The FCC regulations provide that changes or modifications not expressly

approved by SonicWall Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the antenna of the radio/television receiver.
- Increase the separation between this equipment and the radio/television receiver.
- Plug the system into a different outlet so that the system and the receiver are on different power mains branch circuits.
- Consult a representative of SonicWall Inc. or an experienced radio/television technician for additional suggestions.

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For more information, visit <https://www.sonicwall.com/legal>.

To view the SonicWall End User Product Agreement, go to: <https://www.sonicwall.com/legal/eupa>. Select the language based on your geographic location to see the EUPA that applies to your region.

## Legend



**WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death.



**CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.



**IMPORTANT NOTE, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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