

OPTICON

Wireless USB Adapter

OPA-3201

This manual provides specifications for the OPA-3201 wireless USB adapter.

Specifications Manual

All information subject to change without notice.

Document History

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Limited Warranty and Disclaimers

PLEASE READ THIS MANUAL CAREFULLY BEFORE INSTALLING OR USING THE PRODUCT.

Serial Number

A serial number appears on all Opticon products. This official registration number is directly related to the device purchased. Do not remove the serial number from your Opticon device. Removing the serial number voids the warranty.

Warranty

Unless otherwise agreed in a written contract, all Opticon products are warranted against defects in materials and workmanship for two years after purchase. Opticon will repair or, at its option, replace products that are defective in materials or workmanship with proper use during the warranty period. Opticon is not liable for damages caused by modifications made by a customer. In such cases, standard repair charges will apply. If a product is returned under warranty and no defect is found, standard repair charges will apply. Opticon assumes no liability for any direct, indirect, consequential or incidental damages arising out of use or inability to use both the hardware and software, even if Opticon has been informed about the possibility of such damages.

Packaging

The packing materials are recyclable. We recommend that you save all packing material to use should you need to transport your scanner or send it for service. Damage caused by improper packaging during shipment is not covered by the warranty.

Trademarks

Trademarks used are the property of their respective owners.

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Revision History

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First	2014/	-	-	Initial release

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1. Abstract

This manual provides specifications for the OPA-3201 wireless USB adapter.

2. Overview

The OPA-3201 is a USB adapter designed for Opticon wireless scanners, including the OPN-3200 and OPN-4200.

- The OPA-3201 allows for wireless operation without special settings.
- The OPA-3201 is simple and easy to use, just like USB scanners are.
- The OPA-3201 can be used as a USB HID keyboard on a host device such as PC.
- Alternative to the USB-HID keyboard interface, the OPA3201 can use the host's protocol stack via HCI (Host Controller Interface).

3. Basic Specifications

Item			Specification	Note
Control Section	CPU		32 bit RISC	
	FROM		1 Mbyte	
	SRAM		48 Kbyte	
Indicator	LED		Blue x 1	
Interface	Bluetooth		Frequency	2402 ~ 2480 MHz
			Specification	IEEE 802.15.1 compliant
			Communication distance	10 m
			Output level	4 dBm max
			Profile	HID / SPP (HCI)
	USB		•Full-Speed 12 Mbps (HID) •Low-Power class	It may be shorter depending on usage environments Supporting SPP depends on host's protocol stack
Power Section	USB	Operating voltage	4.5 ~ 5.5 V	USB power supply
		Current consumption	100 mA or less	
Environmental Specifications	Temperature	Operating	-5 ~ 50°C	
		Storage	-20 ~ 60°C	
	Humidity	Operating	20 ~ 85%RH	No condensing No frost
		Storage	20 ~ 85%RH	
	Vibration		10 Hz ~ 100 Hz, acceleration of 19.6 m/s ² , 60 minutes per cycle, repeat once in each X, Y and Z-direction	
	Drop		Drop the scanner 18 times (6 faces x 3) from the height of 150 cm onto a concrete floor	
Regulatory Compliance	Product safety		EN60950-1:2005 IEC60950-1:2006	
	EMC		EN 55022:2010 EN 301 489-1 V1.9.2 EN 301 489-17 V2.1.1 EN 300 328 V1.8.1 FCC Part 15 Subpart C, Subpart B ClassB VCCI Class B	For residential, commercial and light-industrial environments
	Other		CE Marking Certification for Construction Design of Specified Radio Equipment	
Immunity Test	ESD	No distraction	Air discharge (direct): ±10 kV	Conditions: IEC61000-4-2 compliant
		No malfunction	Air discharge (direct): ±8 kV	
Physical Features	Dimensions		43.8 × 8.3 × 17.4 (WDH mm)	
	Weight		Approx. 6 g	

4. Detailed View

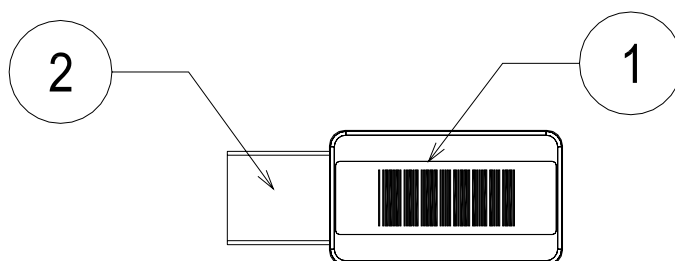


Figure 1: Detailed View of OPA-3201

No	Name	Description
1	USB connector	A connector to connect to the host
2	Address label	The OPA-3201's address bar code. A wireless connection can be established by reading this label with a scanner.

5. Electrical Specifications

5.1. USB

Power supply voltage	: 4.5 ~ 5.5 V
Bus-Power class	: Low-Power
Current consumption	: 100 mA or less

6. Interface Specifications

The OPA-3201 supports two types of interfaces; USB and wireless.

6.1. USB Interface

The USB-HID interface is supported.

6.1.1. Connector

Signal name	Pin No.
VCC	1
Data(-)	2
Data(+)	3
GND	4

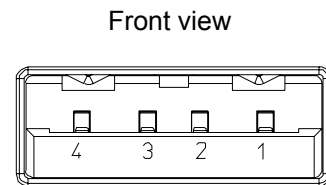


Figure 2: USB Plug (A):

6.1.2. USB Interface Circuit

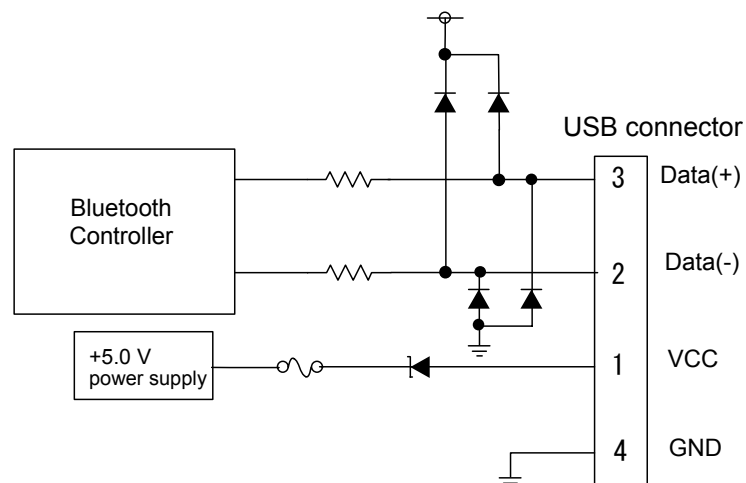


Figure 3: Interface Circuit (USB)

6.2. Wireless Interface

The OPA-3201 uses IEEE 802.15.1 as the wireless interface.

6.2.1. HID Specifications

Frequency	: 2402 ~ 2480 MHz
Specification	: IEEE 802.15.1 compliant
Communication distance	: 10 m
Output level	: 4 dBm max
Implemented profile	: HID
Communication configuration	: 1 to 1
Operating mode in communication	: Slave mode
Security mode	: Authentication supported
Encryption	: Encryption supported

7. Environmental Specifications

7.1. Temperature

The performance is guaranteed when the range of ambient temperature is the following values:

Operating temperature	: -5 ~ 50 °C
Storage temperature	: -20 ~ 60°C

7.2. Humidity

The performance is guaranteed when the range of ambient humidity is the following values:

Operating humidity	: 20 ~ 85% RH (no condensation, no frost)
Storage humidity	: 20 ~ 85% RH (no condensation, no frost)

7.3. Vibration Strength (without packing)

There shall be no sign of malfunction after the following vibration test.

Vibration test: Increase the frequency of the vibration from 10Hz to 100Hz at an accelerated velocity of 19.6m/s^2 (2.0 G) for 30 minutes (60 minutes per cycle) in the non-operating state. Repeat this in each X, Y and Z direction.

7.4. Vibration Strength (in individual packing)

There shall be no sign of malfunction after the following vibration test.

Vibration test: Increase the frequency of the vibration from 10Hz to 100Hz at an accelerated velocity of 19.6 m/s^2 (2.0 G) for 30 minutes (60 minutes per cycle) in individually packaged state. Repeat this in each X, Y and Z direction.

7.5. Drop Impact Strength (without packaging)

There shall be no sign of malfunction after the following drop test.

Drop test: Drop the scanner 18 times in total (3 times at each 6 face) from a height of 75 cm onto a concrete floor as shown below.

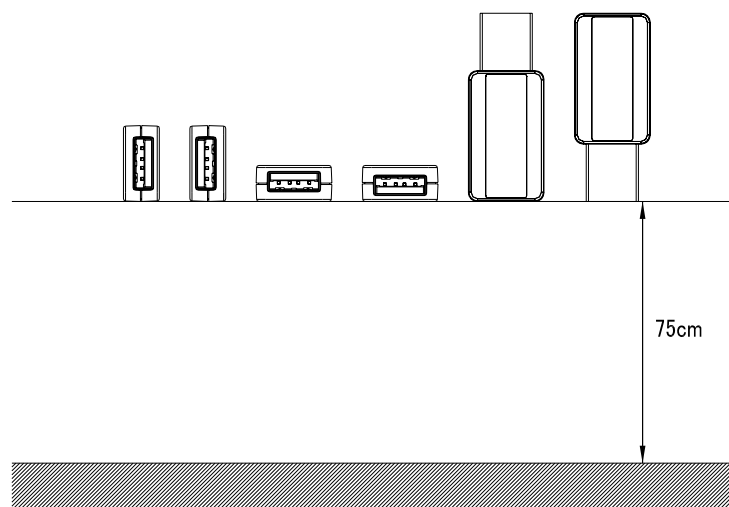


Figure 4: Drop Test

7.6. Drop Impact Strength (in individual packaging)

There shall be no sign of malfunction after the following drop test.

Drop test: Drop an individually packaged scanner 10 times in total, at any of 1 corner, 3 edges, and 6 faces, from a height of 150 cm onto a concrete floor.

7.7. Electrostatic Discharge (ESD) Immunity

Aerial discharge : ± 8 kV max (no malfunction)
 ± 10 kV max (no distraction)

Measurement environment : Testing method compliant with IEC-61000-4-2.

Discharge resistance : $330\ \Omega$

Charging capacitor : $150\ \text{pF}$

8. Regulatory Compliance

8.1. Product Safety

EN60950-1:2005
IEC60950-1:2006

8.2. EMC

R&TTE Directive

- EN 55022:2010
- EN 301 489-1 V1.9.2
- EN 301 489-17 V2.1.1
- EN 300 328 V1.8.1

FCC Part 15 Subpart B Class B

Federal Communications Commission Notices

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Harmful Interference Notice

This product has been tested and complies with the specifications for a Class B 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 according to 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 is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
 - Increase the separation between the equipment or devices
 - Connect the equipment to an outlet other than the receiver's
 - Consult a dealer or an experienced radio/TV technician for assistance
- Changes or modifications to this equipment that have not been approved by Ruckus Wireless may void the user's authority to operate this equipment.

RF Exposure Information This product complies with FCC radiation exposure limits set forth for an uncontrolled environment.

VCCI Class B

This is a Class B product, to be used in a domestic environment, based on the Technical Requirement of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference.

8.3. Others

- Certification for Construction Design of Specified Radio Equipment

9. RoHS

The OPA-3201 is compliant with RoHS.

RoHS: The restriction of the use of certain hazardous substances in electrical and electronic equipment, 2011/65/EC

10. Reliability

MTBF (Mean Time Between Failures) 10,000 hours

11. Precautions

11.1. Handling

Handle this product carefully. Do not deliberately subject it to any of the following.

(1) Shock:

- Do not drop this product from a height greater than specified in this manual.
- Do not place this product under or between any heavy items.

(2) Temperature Conditions:

- Do not use this product at temperatures outside the specified range.
- Do not pour boiling water on this product.
- Do not throw this product into a fire.

(3) Foreign Materials:

- Do not immerse this product in water or other liquid.
- Do not expose this product to chemicals.

(4) Others

- Do not disassemble this product.
- Do not use this product near a radio or a TV. It may cause reception problems.
- This product may be affected by a momentary voltage drop caused by lightning.

11.2. Radio Law

This product qualifies as specified radio equipment for radio stations of 2.4 GHz band data communication system and has obtained the Certification for Construction Design of Specified Radio Equipment. Therefore, radio station license is not required in Japan. The following activities are prohibited under the Radio Law:

- Remodeling and disassembly
- Peeling off the certificate label

Do not use this equipment under the following environment, as radio interference may affect other device and end up with causing physical or material damage.

- Safety apparatus and medical device for human body protection
- Environment where is concerned to cause serious damage

11.3. Wireless Communication

- This product supports wireless communication with other devices that have the same specifications (profile).
- A wireless connection to any device other than Opticon products is not guaranteed.
- This product and the Opticon wireless scanners use the 2.4 GHz frequency band that is shared among other devices. It may affect the communication speed and distance between this product and the scanners.
- The communication speed and distance vary depending on the interference and radio wave condition between this product and the scanners.

11.4. Frequency Band

This product uses the 2.4 GHz frequency band. Read carefully the followings before using this product.

In the frequency band of this product, scientific, medical and industrial devices including microwaves are used. Also other radio stations including local private radio station for mobile object identification requiring license for such as manufacturing lines at factories, specific power-saving radio station requiring no license and amateur radio station are managed.

1. Make sure that "other radio stations" are not managed in the frequency band 2.4 GHz before using this product.
2. In case that radio interference occurs between this product and "other radio stations," change the service space immediately, or stop transmitting radio wave to avoid the interference.
3. If you have any questions or troubles, please contact our sales office.

12. Product Labels

The product label is affixed to the back of the OPN-3201 as shown below.

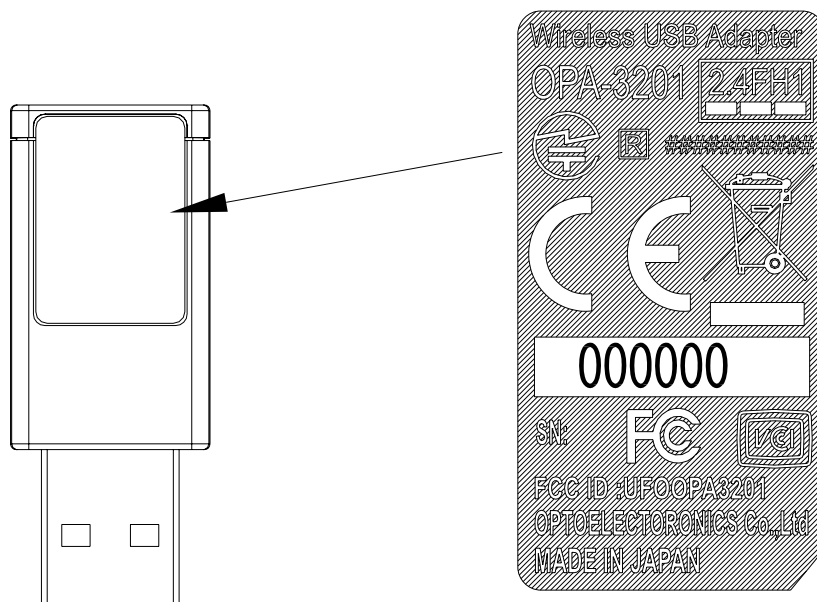


Figure 5: Product Labels

13. Packaging Specifications

13.1. Individual Packaging

Assembled package size: xxx × xxx × xxx (WDH mm)

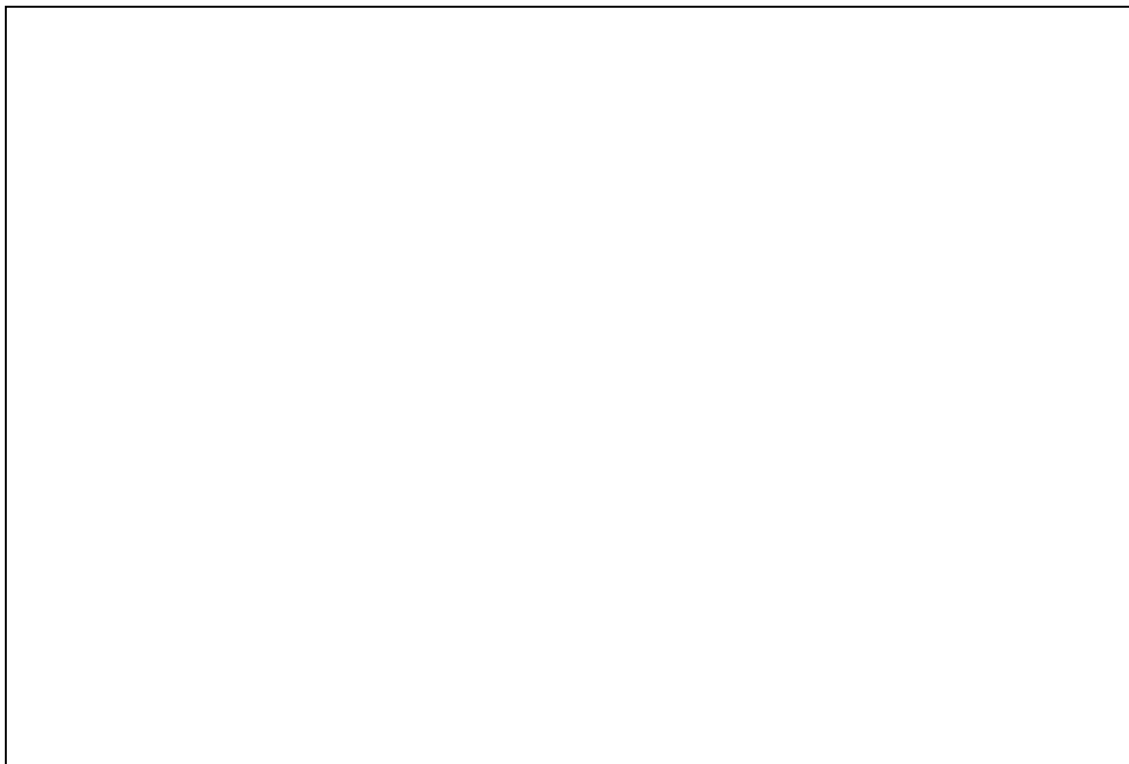


Figure 6: Individual Packaging

13.2. Collective Packaging

Quantity : 100 pcs

Assembled package size : xxx × xxx × xxx (WDH mm)

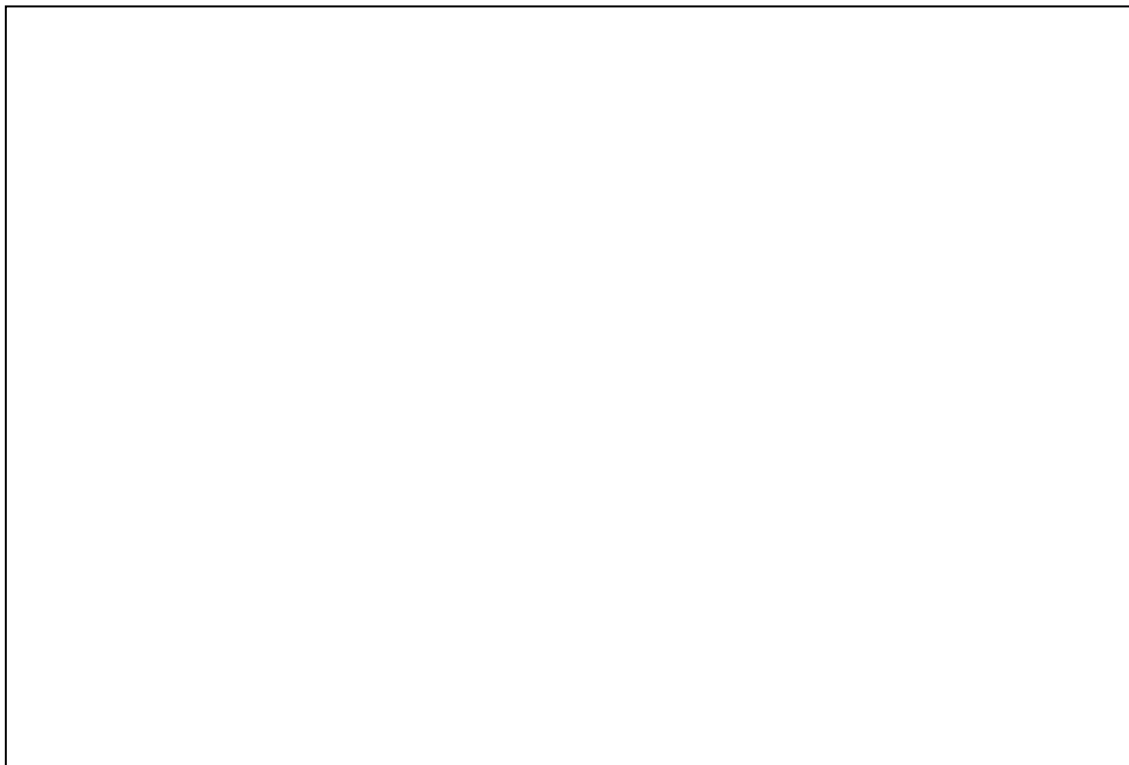


Figure 7: Collective Packaging

* 'Ro mark' on the boxes for the product indicates that the product is RoHS compliant declared by Optoelectronics Co., Ltd.

14. Physical Features

14.1. Dimensions

43.8 × 8.3 × 17.4 (WDH mm)

14.2. Weight

Approx. 6 g (excluding accessories)

14.3. Mechanical Drawing

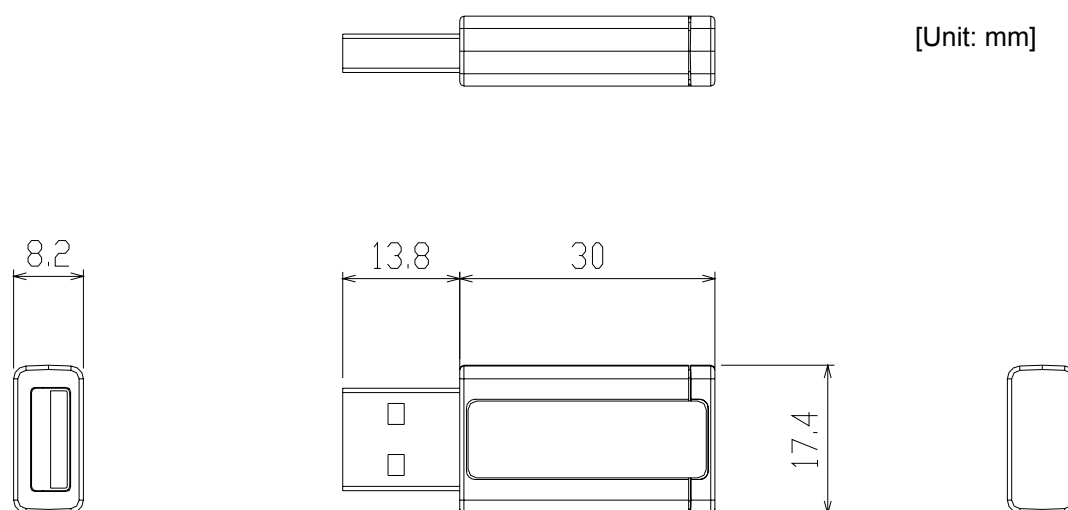


Figure 8: Mechanical Drawing