OPTICON

Handheld Bluetooth 2D Imager Scanner

OPN-3200n

This manual provides specifications for the OPN-3200n handheld Bluetooth 2D imager scanner.

Specifications Manual

All information subject to change without notice.

Document History

Model Number:	**OPN-3200n**	Specification Number:	**SS14022**
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Revision History

Specification No. : SS14022
Product name   : OPN-3200n

Edition	Date	Page	Section	Description of Changes
First	2014/10/15	-	-	Initial release

Contents

1. Abstract

This manual provides specifications for the OPN-3200n handheld Bluetooth 2D imager scanner.

2. Overview

The OPN-3200n is a handheld 2D imager scanner that enables high speed scanning of standard linear (1D) and 2D symbologies. The scanned data is output via Bluetooth.

- ・ All bar code data scanned is transmitted to a host device through the Bluetooth interface.

- ・ The scanner can work with many Bluetooth-enabled host devices, such as PCs, tablet PCs and smart phones.

- ・ Bluetooth SPP (Serial Port Profile) and HID (Human Interface Device Profile) are implemented.

- ・ The scanner can read bar codes from LCD screens.

- ・ A single green LED aiming line toward a target bar code can help the users find the appropriate scanning position.

- ・ Special antimicrobial treatment is applied to the chassis, and alcohol can be used to wipe the scanner clean (except for the scanning window and the logo panel).

- ・ The power source is 3.7 V 1100 mAh (typ.) lithium-ion battery.

- ・ A dedicated charging cradle CHG-3201 is supplied for recharging and easy storage of the scanner.

3. Basic Specifications

Item		Specification		Note
Control Section	CPU	32 bit CISC / 96 MHz		
	FROM	512 Kbyte + 32 Kbyte		
	SRAM	96 Kbyte		
	FROM (storage)	1 Mbyte		For data area only
Input Section	Key type	1 key: trigger		
Indicator	LED	2 colors (red, green) and 1 color (blue)		
	Buzzer	Loudness (3-level) / tone adjustable		
Interface	Bluetooth	Frequency	2402 ~ 2480 MHz	
		Specification	Bluetooth Ver 2.1 compliant	
		Communication distance	10 m	It may be shorter depending on usage environments
		Output level	Class 2	Max output 4 dBm
		Profile	SPP / HID	
Optical Section	Scan method	WVGA (0.36 million-pixel) CMOS area sensor		Frame rate: 60 fps
	Light source for illumination	2 red LEDs		
	Light source for aiming	1 green LED		
	Effective pixels	0.36 million pixels (H: 752 x V: 480)		
	View angle	Horizontal: about 40.6° Vertical: about 26.4°		
Supported 1D Symbologies	Symbologies	UPC-A, UPC-A Add-on, UPC-E, UPC-E Add-on, EAN-13, EAN-13 Add-on, EAN-8, EAN-8 Add-on, JAN-8, JAN-13, Code 39, Tri-Optic, NW-7, Industrial 2 of 5, Interleaved 2 of 5, S-Code, IATA, Code 93, Code 128, MSI/Plessey, UK/Plessey, TELEPEN, Code 11, Matrix 2 of 5, Chinese Post Matrix 2 of 5, Korean Postal Authority code, Intelligent Mail Barcode, POSTNET, JPN		Refer to Chapter 17. for details
	Minimum resolution	Code 39 : 0.127 mm		PCS 0.9
	Curvature	R ≥ 16 mm (10-digit 0.15 mm Codabar) R ≥ 20 mm (12-digit UPC)		PCS 0.9
	Wide bar code	100 mm wide 0.2 mm resolution Code 39 (DOF 115 mm) is readable:		
	Motion Tolerance	UPC 100% moving at 2m/sec (DOF 80 mm) is readable:		
	Depth of Field	Code 39	Resolution (0.127)	60 ~ 95	
			Resolution (0.254)	45 ~ 185	
		Code 128	Resolution (0.508)	50 ~ 250	
			Resolution (0.20)	65 ~ 150	
		UPC	Resolution (0.33)	45 ~ 175	

	Item		Specification		Note
GS1/Composite	Symbologies		GS1 DataBar, GS1 DataBar Limited, GS1 DataBar Expanded, Composite GS1 DataBar, Composite GS1-128, Composite EAN, Composite UPC		GS1 DataBar: formerly called "RSS" Refer to Chapter 17. for details
	Minimum resolution		GS1 DataBar : 0.169 mm Composite Code : 0.169 mm		
Supported 2D Symbologies	Symbologies		PDF417, MicroPDF417, Codablock F, QR Code, MicroQR Code, Data Matrix (ECC 0 - 140 / ECC 200), MaxiCode (Modes 2 to 5), Aztec Code, Aztec Runes, Chinese-sensible code, PLANET, Netherlands KIX, UK Postal, Australian Postal		Disable Code 128 when Codablock F is enabled. Refer to Chapter 17. for details
	Minimum resolution (mm)		PDF417 : 0.169 mm QR Code : 0.212 mm DataMatrix : 0.212 mm		PCS 0.9
	Depth of field (mm)	PDF417	Resolution (0.169)	55 ~ 105	PCS 0.9
			Resolution (0.254)	35 ~ 155	
		QR Code	Resolution (0.212)	70 ~ 95	
			Resolution (0.381)	35 ~ 165	
		DataMatrix	Resolution (0.254)	65 ~ 120	
Common	Scan angle		Pitch : ±50°		
			Skew : ±50°		
			Tilt : ±180°		MRD 32% or more
	Minimum PCS		0.3 or more		
Power Section	Main battery		Lithium-ion 1100 mAh (typ.)		Charge the battery before initial use
	Up-time		24 hours or more		*1
	Operating (charging) voltage		5.0 ~ 6.5V		Charging with charger
	Current consumption	Charging	Less than 1 A		
Environmental Specifications	Temperature	Operating	0 ~ 50°C		
		Storage	-20 ~ 60°C		
	Humidity	Operating	20 ~ 85%		No condensing No frost
		Storage	20 ~ 85%		
	Ambient light immunity	Fluorescent	10,000 lx or less		UPC 100%, optical axis angle 75°, distance 100 mm
		Sunlight	100,000 lx or less		
	Vibration		10 Hz ~ 100 Hz, acceleration of 19.6 m/s2, 60 minutes per cycle, repeat once in each X, Y and Z-direction		
	Drop		Drop the scanner 30 times (6 faces x 5) from the height of 150 cm onto a concrete floor		
	Dust and drip proof		IP42 equivalent		

*1: When a bar code is read twice every 10 seconds at room temperature in a const Bluetooth connection (SPP master mode).

Item			Specification	Note
Regulatory Compliance	LED safety		IEC 62471-1:2006 Exempt_Group	Peak Wavelength 624 nm
	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		Bluetooth logo certification CE Marking Certification for Construction Design of Specified Radio Equipment	
Immunity Test	ESD	No distraction	Air discharge (direct): ±15 kV	Conditions: IEC61000-4-2 compliant
		No malfunction	Contact discharge (direct / indirect): ±6 kV Air discharge (direct): ±8 kV	
Physical Features	Dimensions		113 × 56 × 132 (WDH mm)	
	Weight		Approx. 130 g	Excluding accessories

4. Detailed View
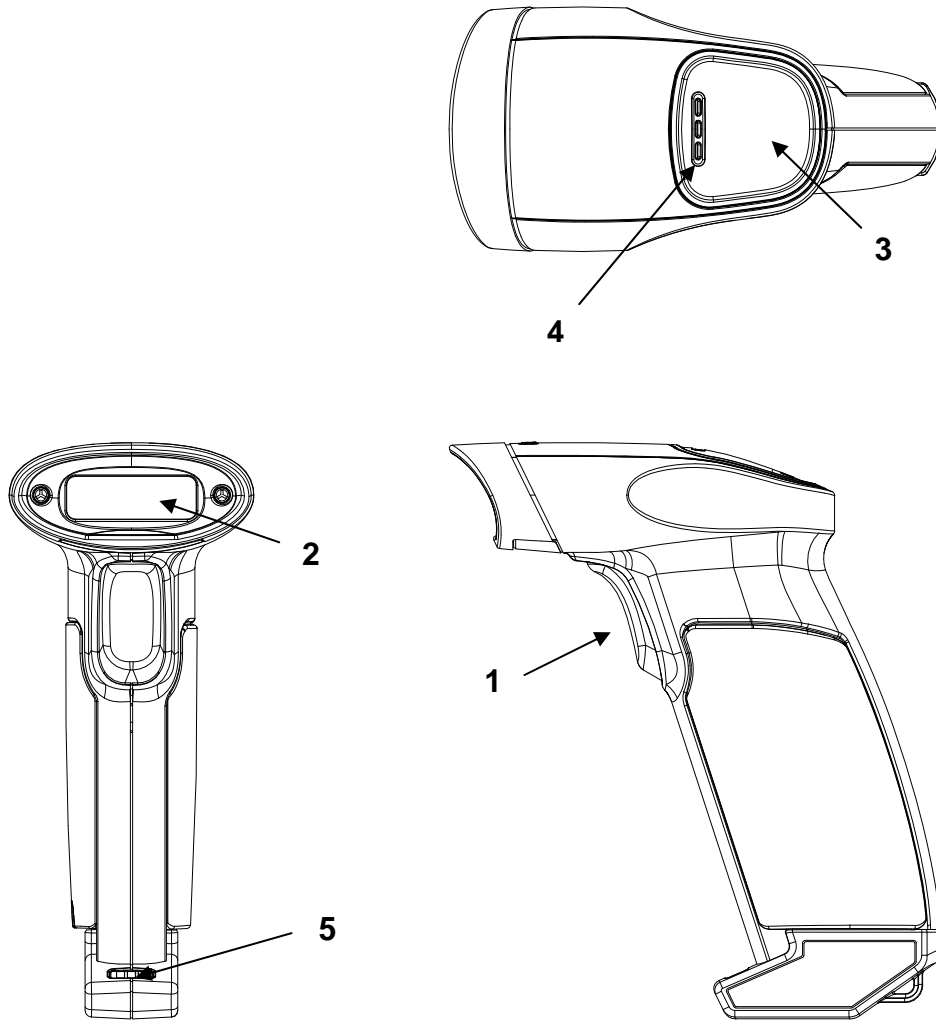
Figure 1: Detailed View of OPN-3200n

No	Name	Description
1	Trigger Key	A key to read bar codes
2	Scan Window	LED illumination is emitted from this window to read bar codes.
3	Status LED	The operating statuses, such as bar code reading, Bluetooth connection and warning, are indicated by different colors.
4	Buzzer Holes	A sound from a built-in buzzer comes out through these holes.
5	Charging terminals	Charging pins connected to the dedicated charging cradle CHG-3201

5. Electrical Specifications

5.1. Current Consumption

Item	Specification	Note
Standby	15 mA or less	With wireless connection
Sleep	1 mA or less	
Operating	330 mA or less	Reading, communications, LED activated
Measurement condition	Power voltage 3.7 V at 25 °C	

5.2. Operating Time and Charging Time

Item		Specification	Note
Battery duration	Sleep	200 hours or more	
	Standby	Approx. 72 hours	With wireless connection
	Reading	Approx. 24 hours	1 scan / 5 secs with wireless connection
Charging time		Approx. 3 hours	With AC adaptor power supply

* The above specifications may not be met when the battery pack has been deteriorated.

6. Interface Specifications

6.1. Bluetooth

Frequency	: 2402 ~ 2480 MHz
Specification	: Bluetooth Ver 2.1 compliant
Communication distance	: 10 m
Output level	: Class 2 (max 4 dBm)
Implemented profile	: SPP / HID
Communication configuration	: 1 to 1
Operating mode in communication	: Master / Slave mode
Security mode	: Authentication supported
Encryption	: Encryption supported

7. Optical Specifications

7.1. Basic Optical Specifications

Item		Characteristics
Scan method	CMOS area sensor (white / black)	-
Effective pixels	(Column) × (Row)	752 × 480 dots
Image capture speed (*1)	Frame rate	60 fps
Focal distance	Distance from the front edge of scanner	124.8 mm
View angle	Horizontal	Approx. 40.6°
	Vertical	Approx. 26.4°
Light source for illumination (LED × 2)	Red LED	-
	Peak wavelength	617 nm
	Directivity angle: 2Φ 1/2 (*2)	60°
	Maximum radiation output (*3)	15000 mcd
Light source for aiming (LED × 1)	Green LED	-
	Peak wavelength	528 nm
	Maximum radiation output (*4)	18700 mcd

*1   The fastest seed of image capture
*2   60° is the data that the LED radiant intensity is reduced by half from the center of optical axis, which is reference value from the LED datasheet.
*3, *4   Reference value based on the datasheet (25°C, IF = 140 mA).

7.2. Aiming Pattern

The aiming is used for the following purpose:
1. Light source to indicate the appropriate reading range
2. Light source for auto trigger opearation

The aiming specifications are as follows:
- An optical axis of imaging field of view and the center of horizontal aiming width coincide at a distance of L=65±20 mm from the front edge of the scanner.
- The horizontal aiming width to the horizontal width of imaging filed of view at a distance of L=65 mm is 80%±10%.

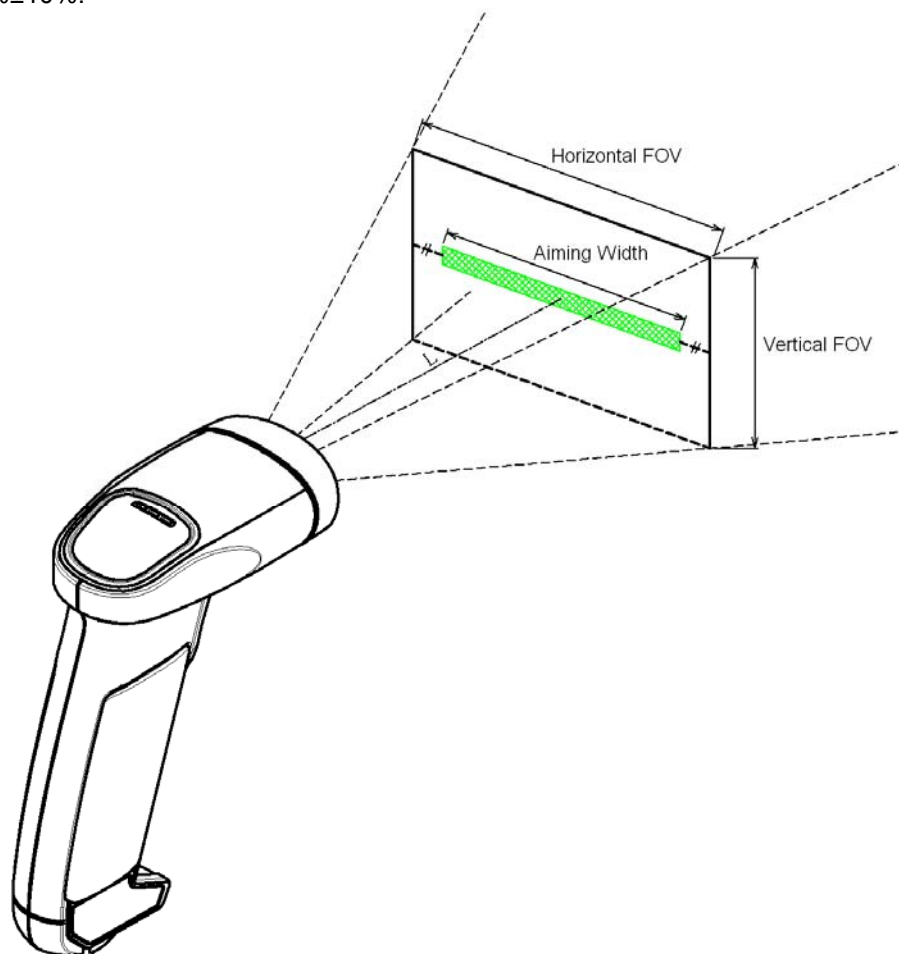*Figure 2: Aiming Pattern and Imaging Range*

7.3. Imaging Range

The range is ±5% from the following values.

L: Distance from the front edge of scanner	[mm]	60	80	100	120	140	160
H: Horizontal imaging range	[mm]	66	82	97	111	125	136
V: Vertical imaging range	[mm]	42	52	62	72	82	93

8. Technical Specifications

Code reading is performed by positioning the aiming light over the center of a code. The conditions for technical specifications are as follows unless otherwise specified in each section.

<Conditions>

Temperature and humidity	: Room temperature, room humidity
Ambient light	: 100 ~ 200 lx
Angles	: Pitch: $\alpha = 0°$, Skew: $\beta = 15°$, Tilt: $\gamma = 0°$
Curvature	: R = ∞
Power supply voltage	: 5.0 V
PCS (1D and 2D)	: 0.9 or higher
Scanning Test	: 1 read in 0.5 sec or less. Accept the performance with 70% or more success rate for 10 readings.
Bar code test sample (1D and 2D)	: Refer to Section 8.1. for details.

<Bar code test sample>

1D codes:	OPTOELECTRONICS test samples
GS1 Databar, Stacked codes, 2D codes:	Labels printed by a dedicated printer for bar code

8.1. Bar Code Test Sample

1D Bar Codes

<Code 39>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.127 mm	Code 39	0.9	32 × 10	15
0.20 mm			100 × 10	31
0.254 mm			32.5 × 12	7
0.508 mm			36 × 25	4

<Code 128>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.20 mm	Code 128	0.9	42 × 10	16

<UPC>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.330 mm	12-digit UPC	0.9/0.3	31.5 × 25.0	12

<Codabar>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.150 mm	Codabar (NW-7)	0.9	20 × 10	10

GS1 Databar/Composite

<GS1-limited>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.169 mm	Limited	0.9	12 × 1.5	14
0.169 mm	Limited-Composite	0.9	12 × 3.0	26

2D Codes

<PDF417>

Resolution	Error Correction	PCS	Size (mm)	No. of Character
0.169 mm	Level-3	0.9	23 × 10	58
0.254 mm			35 × 15	

<QR Code: Model-2>

Resolution	Error Correction	PCS	Size (mm)	No. of Character
0.212 mm	M	0.9	6 × 6	44
0.381 mm			11 × 11	

<Data Matrix>

Resolution	Model	PCS	Size (mm)	No. of Character
0.212 mm	ECC200	0.9	5 × 5	40
0.254 mm			6 × 6	

* The size is outline dimensions excluding the quiet zones.

8.2. Scan Area and Depth of Field

The scan area is within the arc centered on the scan origin as shown in each resolution, which is measured from the front edge of the scanner.

	Resolution 0.127			
	60 ⟷ 95			
Code 39	45 ⟷ 185 Resolution 0.254			
	50 ⟷ 250 Resolution 0.508			
Code 128	65 ⟷ 150 Resolution 0.20			
100% UPC	45 ⟷ 175 Resolution 0.33			
PDF417	55 ⟷ 105 Resolution 0.169			
	35 ⟷ 155 Resolution 0.254			
QR Code	70 ⟷ 95 Resolution 0.212			
	35 ⟷ 165 Resolution 0.381			
Data Matrix	65 ⟷ 120 Resolution 0.254			

[Unit: mm]

Figure 3: Scan Area and Depth of Field

8.3. Printed Contrast Signal (PCS)

0.3 or higher

<Conditions>
MRD : 32% and higher (70% or higher reflectivity of space and quiet zone)
Distance : 125 mm from the front edge of the scanner
Bar code : UPC (resolution 0.33 mm, PCS 0.3) specified in Section 8.1.

MRD = Minimum reflectance of white space - Maximum reflectance of black bar

$$PCS = \frac{\text{Reflectance of white spece - Reflectance of black bar}}{\text{Reflectance of white space}}$$

* Be sure to keep the optical window clean without dirt or scratches, or it may have a bad effect on the reading characteristics.

8.4. Minimum Resolution

1D bar code : 0.127 mm (Code 39 specified in Section 8.1.)
GS1 Databar : 0.169 mm (GS1 Databar Limited specified in Section 8.1.)
Stacked code : 0.169 mm (PDF417, GS1 Databar Limited Composite specified in Section 8.1.)
2D code : 0.212 mm (QR Code, Data Matrix specified in Section 8.1.)

<Conditions>
Bar code : Above codes specified in Section 8.1.
Distance : 95 mm from the front edge of the scanner
Angle : $\alpha = 0°$, $\beta = + 15°$, $\gamma = 0°$
Curvature : $R = \infty$

8.5. Wide Bar Code

Code 39 with width of 100 mm and resolution of 0.2 mm can be read

<Conditions>
Bar code : Code 39 (resolution 0.20 mm, PCS 0.9) specified in Section 8.1.
Distance : 155 mm from the front edge of the scanner
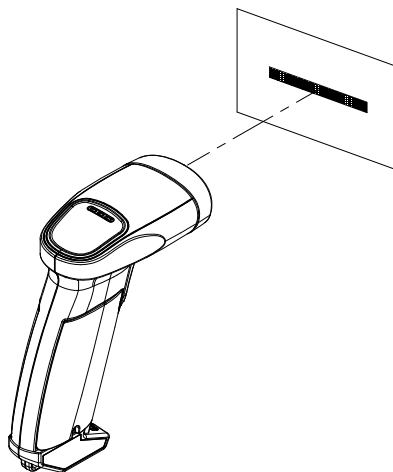Angle : $\alpha = 0°$, $\beta = +15°$, $\gamma = 0°$
Curvature : $R = \infty$

Figure 4: Wide Bar Code

8.6. Pitch, Skew and Tilt

Pitch   : α = ±50°
Skew   : β = ±50°
Tilt   : γ = ±180°

<Conditions>
Bar code   : UPC (resolution 0.33 mm) specified in Chapter 8.1
Distance   : 125 mm from the front edge of the scanner
Curvature   : R = ∞
Angle   : Pitch   β = +15°, γ = 0°
                    Skew, Dead zone   α = 0°, γ = 0°
                    Tilt   α = 0°, β = +15°
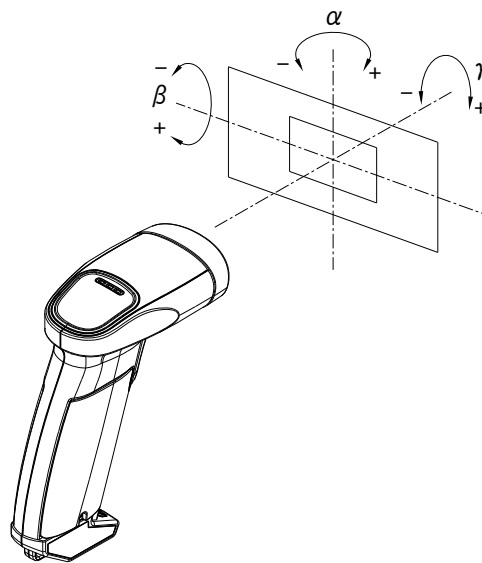

Figure 5: Pitch, Skew and Tilt

8.7. Curvature

0.33 mm 12-digit UPC   : R ≥ 20 mm
0.15 mm 10-digit Codabar (NW-7)   : R ≥ 16 mm

<Conditions>
Bar code   : UPC (0.33 mm) and Codabar (0.15 mm) specified in Section 8.1.
Distance   : 105 mm from the front edge of the scanner
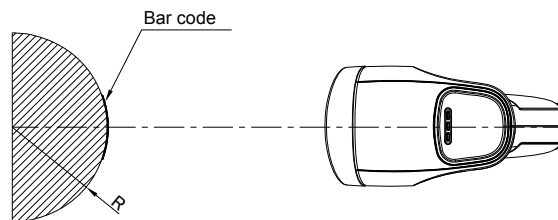Angle   : α = 0°, β = +15°, γ = 0°

Figure 6: Curvature

* The reading characteristics may deteriorate due to the specular reflection of LED illumination when the reflectivity is high.

8.8. Auto Trigger

When the scanner is placed in a dedicated stand (sold separately) which contains a magnet, it can detect this magnet and enters auto trigger mode. The scanner starts scanning automatically when it detects a change in brightness that occurs when a bar code label is presented in front of it.

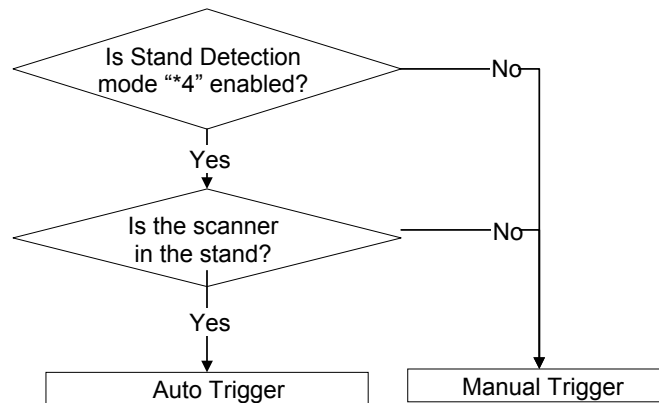### 8.8.1. Stand Detection

"Stand detection - Auto trigger Flow"

Figure 7: Stand Detection Flow

* The dedicated stand is an optional accessory that can be purchased separately.
* The stand detection mode is disabled by default. It must be enabled to be used.

8.8.2. Auto Trigger Operation

Trigger should be enabled when a gray-colored paper is presented in front of a background black-colored paper. Trigger should also be enabled when the black-colored paper is presented in front of the background gray-colored paper.

<Conditions>
Paper   : Black paper from Glory: Black 010010016
                                   : Gray paper from Glory: Silver-gray 010010016
Ambient light   : 500 ~ 1000 lx
Moving speed of paper   : 2 m/sec or slower
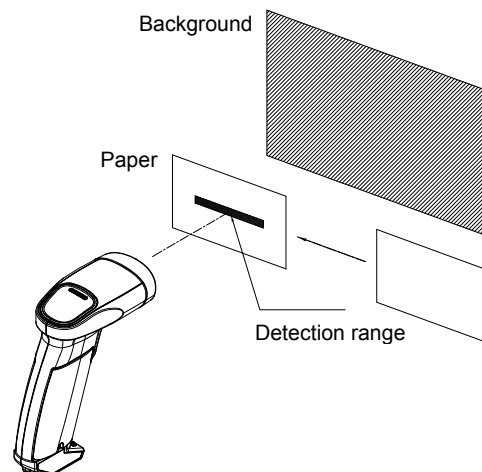Temperature / Humidity   : Room temperature / room humidity

Figure 8: Auto Trigger

8.8.3. Motion Tolerance

100% UPC bar codes moving at 2m/s can be read.

<Conditions>
Temperature / Humidity   : Room temperature / room humidity
Ambient light   : 500 ~ 1000 lx
Distance   : 125 mm from the front edge of the scanner
PCS   : 0.9 or higher
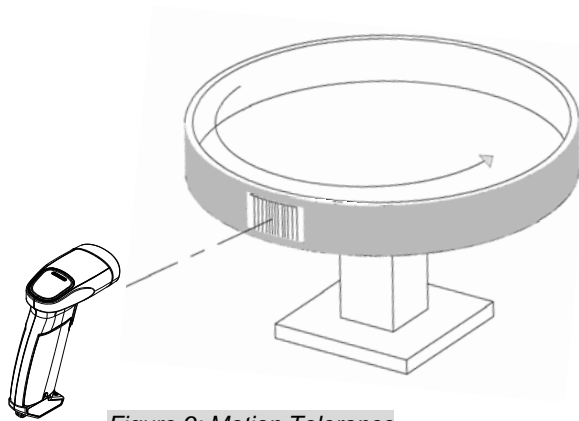Bar code   : Refer to Section 8.1.

Figure 9: Motion Tolerance

* The reading characteristics may deteriorate due to the specular reflection of LED illumination when the reflectivity is high.

9. Environmental Specifications

9.1. Temperature

Scanning performance is guaranteed when the range of ambient temperature around the scanner is the following values:

Operating temperature   : 0 ~ 50 °C
Storage temperature   : -20 ~ 60°C

9.2. Humidity

Scanning performance is guaranteed when the range of ambient humidity around the scanner is the following values:

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

9.3. Ambient Light Immunity

Scanning performance is guaranteed when the range of illumination on a bar code surface is between zero and the following values:

Incandescent light   :   10,000 lx
Fluorescent light   :   10,000 lx
Sunlight   : 100,000 lx

<Conditions>
Bar code   : UPC (resolution 0.33 mm) specified in Section 8.1.
Distance   : 125 mm from the front edge of the camera module
Angle   : α = 0°, β = ＋15°, γ = 0°
Curvature   : R = ∞
Power supply voltage   : 3.7 V

* Be sure that the direct light or specular reflection from the light source does not enter the light receiving section of the scanner.

9.4. Dust and Drip Proof

IEC IP42 equivalent

Protection against solid objects: Level 4 equivalent
Protected against solid objects greater than 1.0 mm

Protection against liquids: Level 2 (JIS IPX2) equivalent
Protected against dripping water from the vertical when tilted up to 15°

* () is JIS drip-proof type.

9.5. 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.

9.6. 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.

9.7. Drop Impact Strength (without packaging)

There shall be no sign of malfunction after the following drop test.
Drop test: Drop the scanner 30 times in total (5 times at each 6 face) from a height of 150 cm onto a concrete floor as shown below.
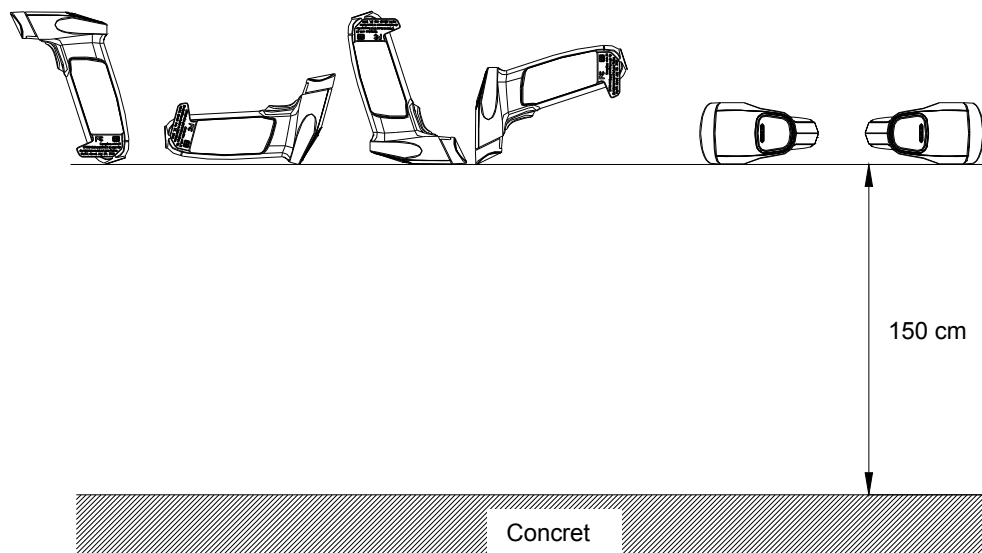

150 cm

Concret

Figure 10: Drop Test

9.8. 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.

9.9. Electrostatic Discharge (ESD) Immunity

Contact discharge   : ±6 kV max (direct or indirect discharge, no malfunction)
Aerial discharge   : ±8 kV max (no malfunction)
                            ±15 kV max (no distraction)

Measurement environment   : Testing method compliant with IEC-61000-4-2.
Discharge resistance   : 330 Ω
Charging capacitor   : 150 pF

10. Regulatory Compliance

10.1. LED Safety

IIEC 62471-1:2006 Exempt_Group

10.2. Product Safety

EN60950-1:2005
IEC60950-1:2006

10.3. 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 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.

10.4. Others

・Bluetooth logo certification
・Certification for Construction Design of Specified Radio Equipment

・Classification of Specified Radio Equipment	Article 2 Paragraph 1, Item 19 Low power data communication system in 2.4 GHz band
・Model Name	OPA-26X1
・Certificate Number	201-125603

11. RoHS

The OPN-3200n is compliant with RoHS.

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

12. Reliability

MTBF (Mean Time Between Failures)　　10,000 hours

13. Precautions

13.1. 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.
　　・Do not swing the cable around.
(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.

13.2. 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

13.3. Bluetooth

・This product supports Bluetooth wireless communication with other Bluetooth devices that have the same profile
・This product complies with Bluetooth standards; however, its communication performance with untested devices is not guaranteed.
・Bluetooth devices 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 host device.
・The communication speed and distance vary depending on the interference and radio wave condition between this product and the host device.

13.4. Frequency Baud

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.

14. Product Labels

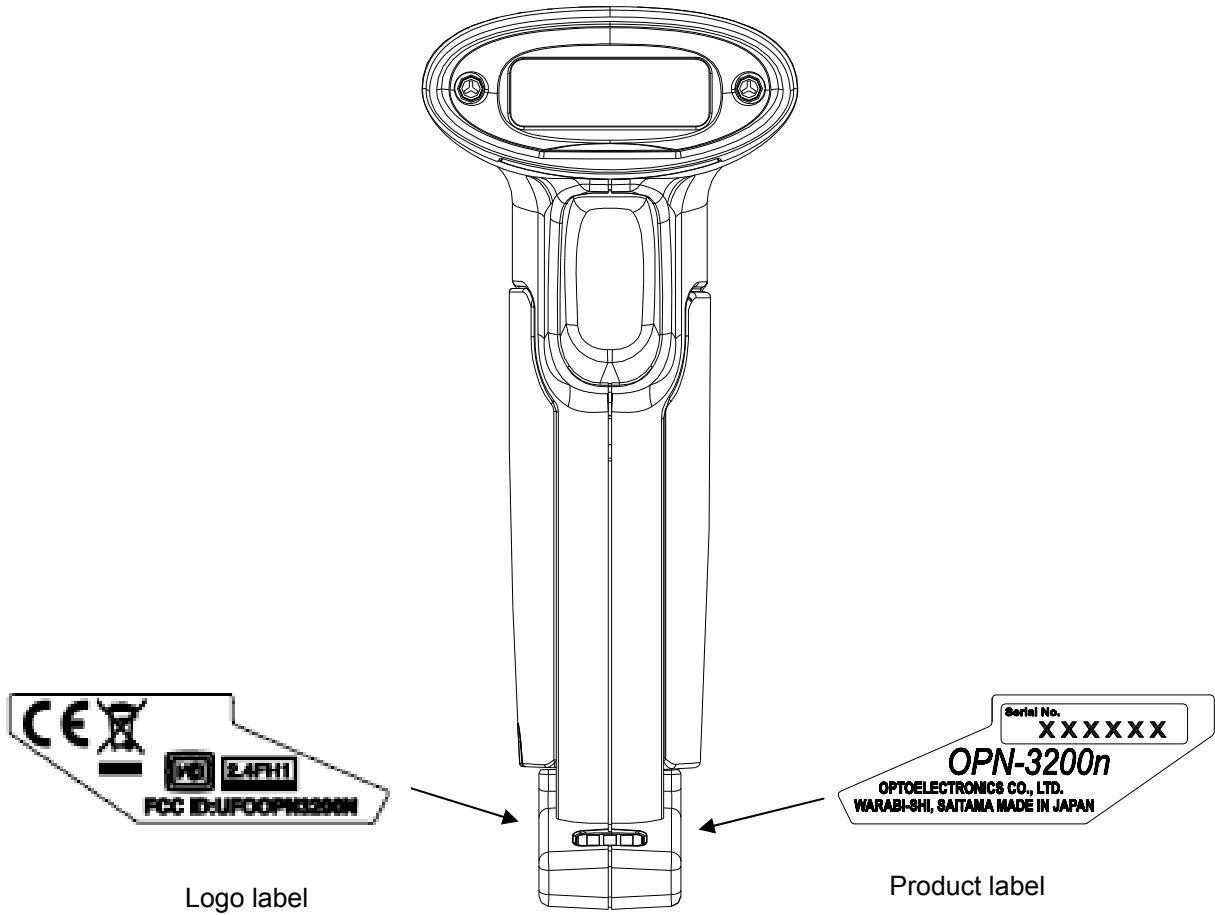The product labels are affixed to the scanner as shown below.

Logo label

Product label

Figure 11: Product Labels

Product label	Shows the product name, serial number, and month and year of manufacture.
Logo label	Shows the standards-compliant languages and logos.

15. Packaging Specifications

15.1. Individual Packaging

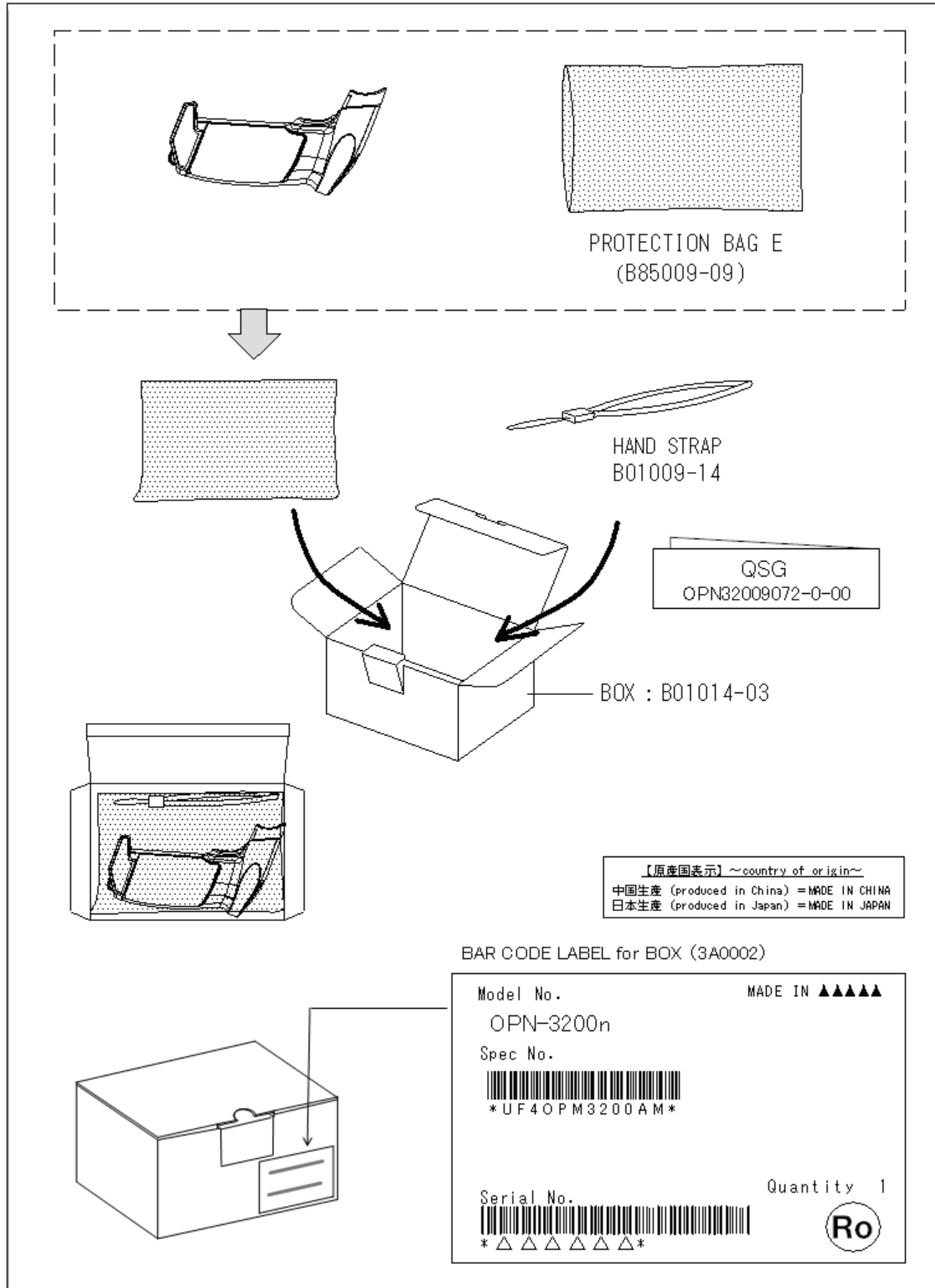Assembled package size: 165 × 110 × 82 (WDH mm)

Figure 12: Individual Packaging

15.2. Collective Packaging

Assembled package size : 585 × 520 × 200 (WDH mm)
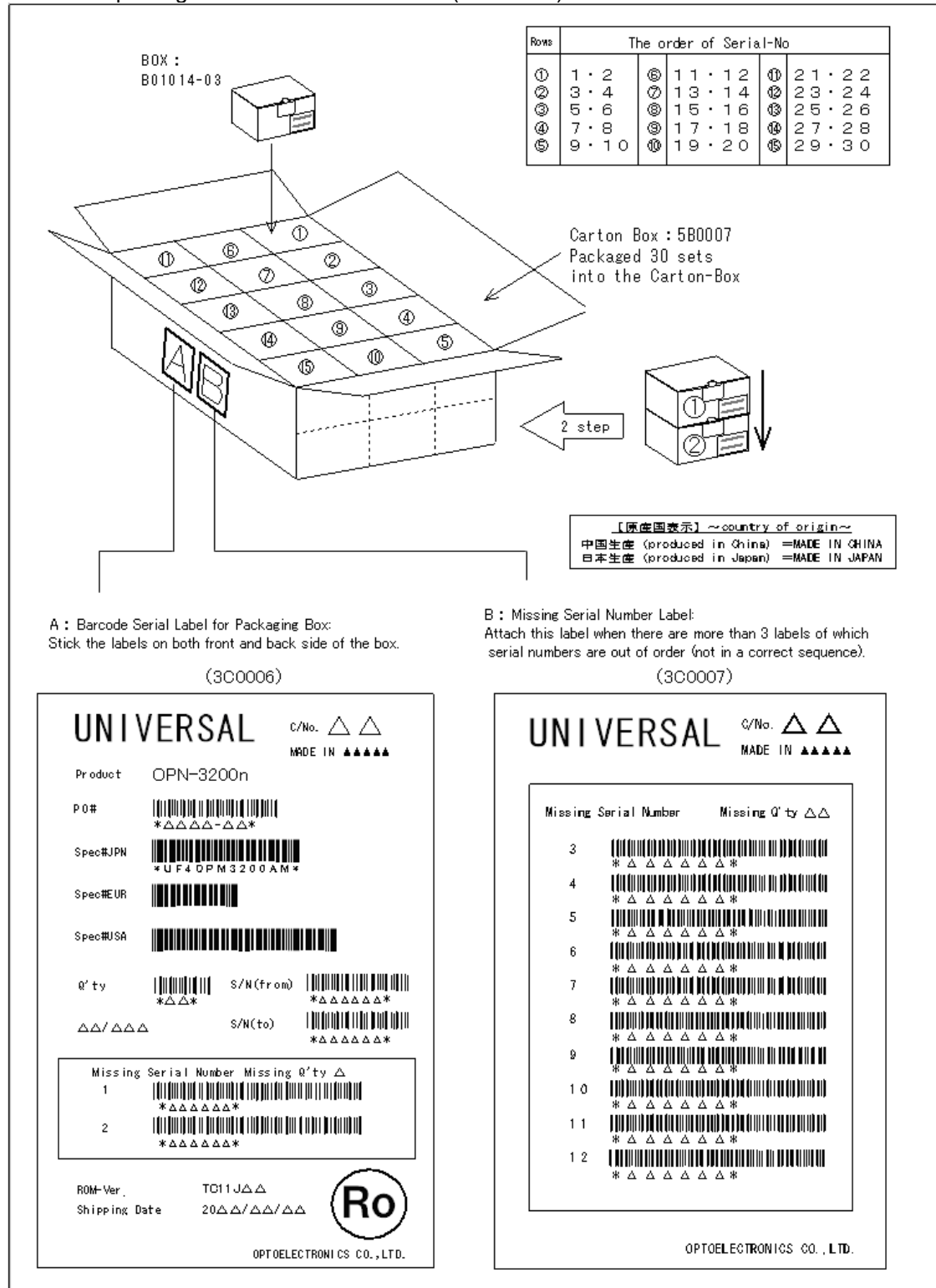

Figure 13: Collective Packaging

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

16. Physical Features

16.1. Dimensions

56 × 113 × 132 (WDH mm / excluding protruding portion)

16.2. Weight

Approx. 130 g (excluding accessories)
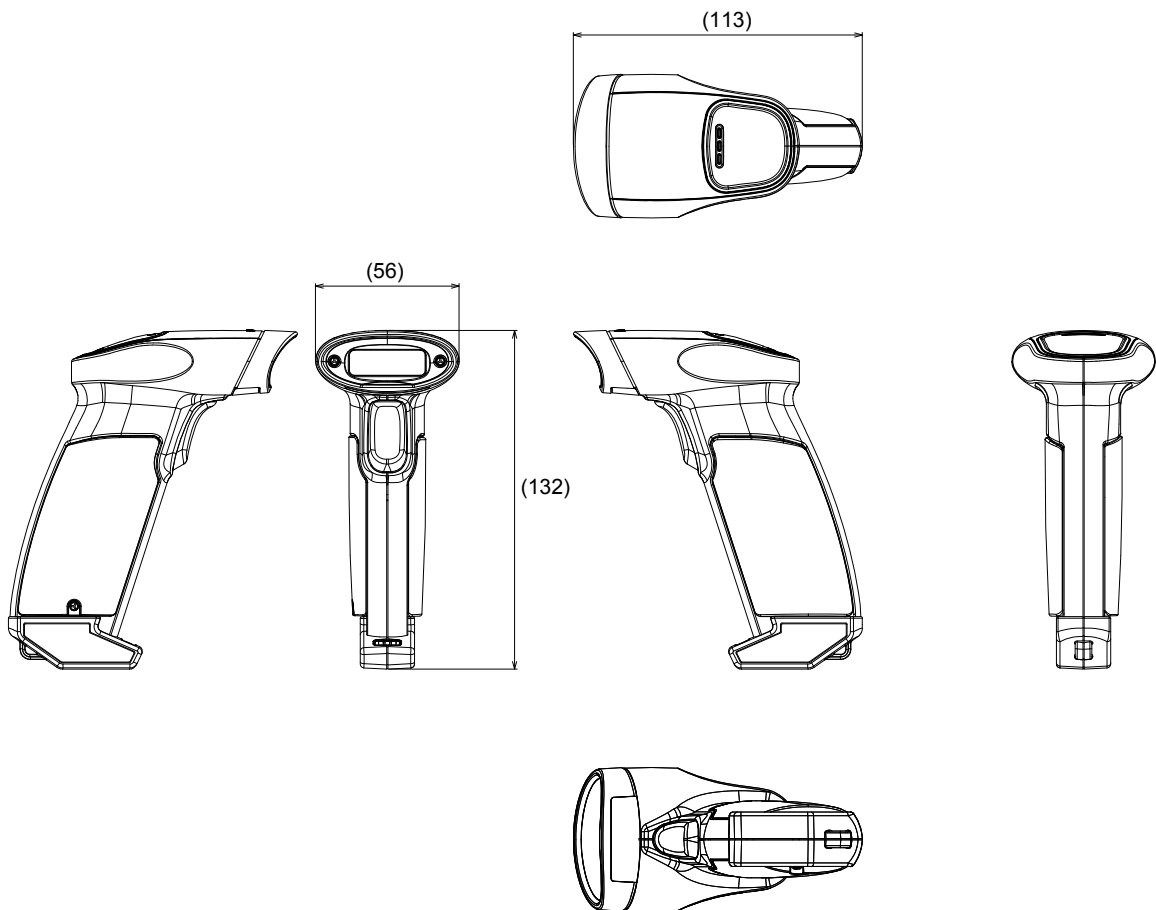
16.3. Mechanical Drawing

Figure 14: Mechanical Drawing

17. Supported Symbologies

17.1. Default Setting

The scanner is set to default settings by reading the following menu label.

Default
 @MENU_OPTO@ZZ@SO@ZZ@OTPO_UNEM@

17.2. Supported Symbologies

17.2.1. 1D Bar Codes

Code type			Default	Minimum length	Note
UPC			O	-	
	UPC Add-on 2 UPC Add-on 5				
EAN (JAN)			O	-	
	EAN Add-on 2 EAN Add-on 5				
		EAN-13	O		
		EAN-13 Add-on 2 EAN-13 Add-on 5			
		EAN-8	O		
		EAN-8 Add-on 2 EAN-8 Add-on 5			
Code 39			O	1	Not transmit ST/SP
	Tri-Optic		O	-	Not transmit ST/SP
Codabar (NW7)			O	1	Not transmit ST/SP
Industrial 2 of 5			O	5	
Interleaved 2of 5			O	6	
	S-Code			5	
Code 128			O	1	GS1 conversion (setting required)
Code 93			O	1	
IATA			O	5	
MSI/Plessey				3	
UK/Plessey				2	
TELEPEN				1	
Code 11				1	
Matrix 2 of 5				5	
Chinese Post Matrix 2 of 5				-	
Korean Postal Authority				-	
Intelligent Mail Barcode				-	
POSTNET				-	
JPN (Customer Barcode)				-	

17.2.2. GS1 Databar, Composite Code

Code type	Default	Note
GS1 DataBar ・GS1 DataBar Omnidirectional ・GS1 DataBar Truncated ・GS1 DataBar Stacked ・GS1 DataBar Stacked Omnidirectional	O	GS1 conversion (setting required)
GS1 DataBar Limited	O	
GS1 DataBar Expanded ・GS1 DataBar Expanded ・GS1 DataBar Expanded Stacked	O	
Composite GS1 DataBar ・CC-A ・CC-B ・Limited CC-A ・Limited CC-B ・Expanded CC-A ・Expanded CC-B	O	GS1 conversion (setting required)
Composite GS1-128 ・CC-A ・CC-B ・CC-C		GS1 conversion (setting required)
Composite EAN ・EAN-13 CC-A ・EAN-13 CC-B ・EAN-8 CC-A ・EAN-8 CC-B		GS1 conversion (setting required)
Composite UPC ・UPC-A CC-A ・UPC-A CC-B ・UPC-E CC-A ・UPC-E CC-B		GS1 conversion (setting required)

17.2.3. 2D Codes

Code type	Default	Note
PDF417	O	
Micro PDF417		
Codablock F		
QR Code	O	GS1 conversion (setting required)
Micro QR	O	
Data Matrix (ECC 200)	O	GS1 conversion (setting required)
Data Matrix (ECC 000-140)		
Aztec Code	O	
Aztec Runes		
Chinese-sensible code		
Maxi Code		
PLANET		
Netherlands KIX		
UK Postal		
Australian Postal		

* The supported symbologies vary depending on specifications for the application to be loaded.