

PX-36

2D Data Collector with Bluetooth



The PX-36 is a Data Collector with a 2D barcode scan engine, Bluetooth communication and time stamp functionality.

The information in this document is subject to change without notice.

Document History

Model Number:	PX-36	Original release date	31-08-2015
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Contents

1	Abstract	6
2	Overview	6
3	Basic Specifications	7
3.1	Ambient Light Immunity conditions	9
4	Electrical Specifications	10
4.1	Main Battery	10
4.2	Battery Operating Time and Charging Time (TBD)	10
5	Mechanical	11
5.1	Dimensions	11
5.2	Weight	11
5.3	Color	11
5.4	Detailed view	12
6	Interface Specifications	13
6.1	Bluetooth	13
6.2	IrDA	13
6.2.1	Specifications	13
6.2.2	Transmission Speed	13
7	Optical Specifications	13
7.1	Basic Optical Specifications	13
7.2	Aiming Pattern	14
7.3	Imaging Range	14
7.4	Barcode reading/decoding specifications	15
7.4.1	Conditions	15
7.4.2	Bar Code Test Sample	16
7.4.3	Scan Area and Depth of Field	17
7.4.4	Printed Contrast Signal (PCS)	18
7.4.5	Minimum Resolution	18
7.4.6	Max. Width Barcode	18
7.4.7	Pitch, Skew and Tilt	19
7.4.8	Curvature	19
7.4.9	Motion Tolerance	20
8	Environmental Specifications	21
8.1	Temperature	21
8.2	Humidity	21
9.3	Ambient Light Immunity	21
8.3	Drop Impact Strength (without packaging)	22
8.4	Drop Impact Strength (in individual packaging)	22
8.5	Electrostatic Discharge (ESD) Immunity	22
9	Regulatory Compliance	23
9.1	LED Safety	23



9.2	Product Safety	23
9.3	EMC	23
10	Labeling	24
10.1	Serial Number label	24
10.2	FCC Warning Label	25
10.3	White box label	25
11	Packaging Specifications	26
11.1	Individual Packaging Specification (TBD)	26
11.3	Collective Packaging Specification	27
12	Safety precautions	28
12.1	Shock	28
12.2	Temperature Conditions	28
12.3	Foreign Materials	28
12.4	Other	28

Table of Figures

Figure 1: Ambient Light Immunity	9
Figure 2: Mechanical drawing	11
Figure 3: Detailed view	12
Figure 4: Aiming pattern	14
Figure 5: Scan Area and Depth of Field	17
Figure 6: Barcode width	18
Figure 7: Pitch, Skew and Tilt	19
Figure 8: Curvature	19
Figure 9: Motion tolerance	20
Figure 10: Drop test	22
Figure 11: PX-36 product labels	24
Figure 12: Serial number label	24
Figure 13: FCC warning label	25
Figure 14: White box label	25
Figure 15: Individual packing	26
Figure 16: Shipment packing	27



1 Abstract

This manual provides specifications for the PX-36 Bluetooth data collector with built-in 2D barcode scanner.

2 Overview

The PX-36 is a programmable data collector that features a CMOS image sensor, built-in Bluetooth and IrDA for data communication. The CMOS barcode engine is able to read barcodes in its view, regardless of their direction even when they are upside down they can be read. This scanner is also particular well suited to read barcodes from LCD screens. The PX-36 has a single green LED aiming line towards a target bar code that helps users to find the most optimal scanning position.

Bluetooth is one of the communication options for this device allowing it to wirelessly connect to many peripherals like printers, smart phones and tablets. The supported profiles are SPP (Serial port profiles) and HID (keyboard emulation). This means that the scanner can work with many Bluetooth-enabled host devices, such as PCs, tablet PCs and smart phones.

Infra-red is another communication option of the PX-36. Stored data can be sent out via an IrDA Ver.1.2-compliant infra-red transceiver. For easy connection to a computer, Opticon sells several cradles that can be used to receive the infra-red transmission and convert that to a standard RS232 or USB signal that can be connected to any computer. On top of the communication features that the cradles can offer, they can also be used to charge the battery inside the data collector.

The PX-36 also has a clock function, allowing it to add a time stamp to scanned barcode data.

Last but not least, the PX-36 is fully programmable allowing users to write a wide range of applications that allow the PX-36 to exactly according to their wishes.



3 Basic Specifications

Item		Specification		Note	
Control Section	CPU	32 bit CISC / 96 MHz			
	FROM (OS only)	512 Kbyte + 32 Kbyte			
	SRAM (OS only)	96 Kbyte			
	FROM (storage)	1 Mbyte		For applications	
	SRAM (storage)	1 Mbyte		For applications & file system	
Input Section	Key type	18 keys: trigger, up, down, CLR, BS, shift and 10 numeric keys			
Indicator	LED	3 colors (red, green and blue)			
	Buzzer	Loudness and tone adjustable			
Interface	Bluetooth	Frequency	2402 ~ 2480 MHz		
		Specification	Bluetooth Ver 4 compliant		
		Communication distance	10 m		Range depends on environment
		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 Symbolologies	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		The list is constantly updated with new symbologies so this list may not be complete.	
	Minimum resolution	Code 39 : 0.1 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"	
	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 0.169 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 : $\pm 50^\circ$		
			Skew : $\pm 50^\circ$		
			Tilt : $\pm 180^\circ$		
Minimum PCS		0.2 or more	MRD 12% or more		
Power Section	Main battery		Lithium-ion 1880 mAh (typ.)	Charge the battery before initial use	
	Up-time		20 hours or more	1 scan/10 sec, room temp, active SPP connection.	
	Operating (charging) voltage		6.0V \pm 10%	Charging with dedicated cradle.	
	Current consumption	Charging	Approx 300mA		
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, optical axis angle 75°, distance 90 mm. See figure 1 below for details	
		Sunlight	100,000 lx or less		
	Drop		Drop the scanner 12 times (6 faces x 2) from the height of 150 cm onto a concrete floor		

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	For residential, commercial and light-industrial environments
	Other	Bluetooth logo certification	
Immunity Test	ESD	No distraction	Air discharge (direct): ±15 kV
		No malfunction	Contact discharge (direct / indirect): ±6 kV Air discharge (direct): ±8 kV
Physical Features	Dimensions	44 × 25 × 140 (WDH mm)	
	Weight	Approx. 115 g	Excluding battery

3.1 Ambient Light Immunity conditions

Ambient Light Immunity is measured using the following conditions:

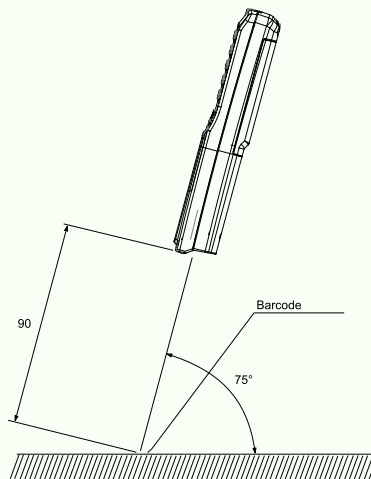


Figure 1: Ambient Light Immunity

Barcode Label:

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.330 mm (13mil)	12-digit UPC	0.9	31.5 × 25.0	12

Angles : $\alpha = 0^\circ$, $\beta = +15^\circ$, $\gamma = 0^\circ$
 Curvature : $R = \infty$

Note: α , β and γ respectively represent pitch, skew and tilt. Please see chapter 7.4 for details on how these values are defined.

4 Electrical Specifications

4.1 Main Battery

The main battery is a lithium-ion secondary battery.

Nominal capacity: 1880 mAh

Battery charging time: Approximately 7 hours

Battery type: NP120, without leads

4.2 Battery Operating Time and Charging Time (TBD)

Parameter	Specifications	Notes
Backup battery	3 mAh manganese dioxide battery	
Current consumption	1 mA or less*	Standby
	100 mA or less*	Bluetooth and Backlight on
	400 mA or less*	When scanning
Usable time	10 hours or more	1 scan/5s
Data hold time	72 hours or more	After main battery discharged

*With nominal battery voltage (3.7V)



5 Mechanical

5.1 Dimensions

W 44.0 mm x D 25.0 mm x H 140.0 mm

5.2 Weight

115 g (max.), excluding the lithium-ion battery

5.3 Color

Black

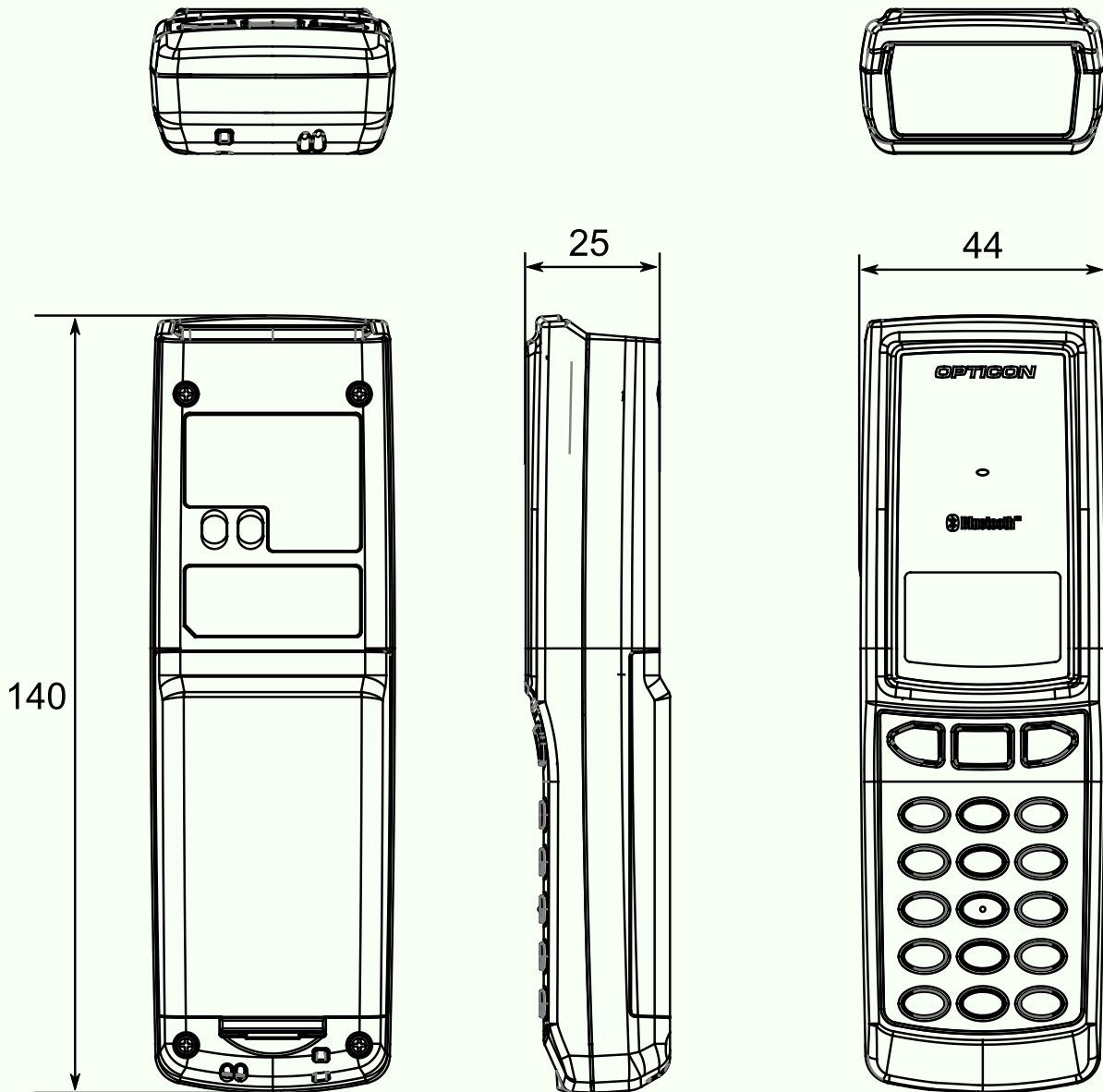


Figure 2: Mechanical drawing

5.4 Detailed view

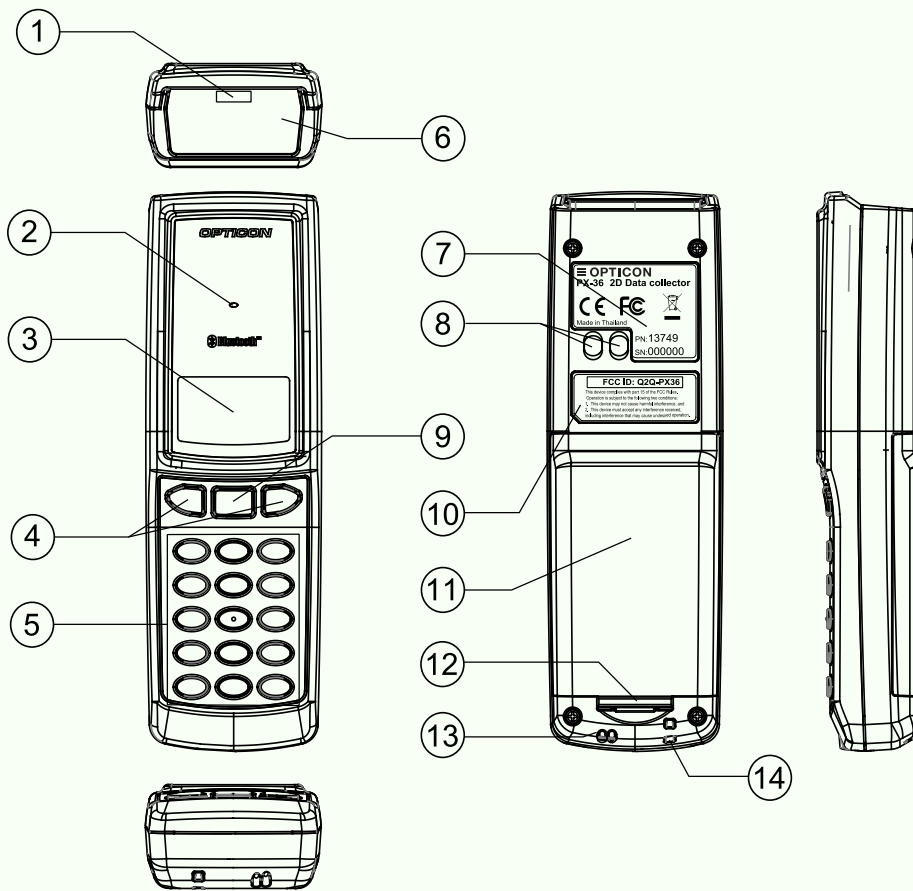


Figure 3: Detailed view

No.	Items	Descriptions
1	IrDA Infra-red transceiver	Infrared port for communication with the cradle.
2	LED Indicator	Indicator of operating status, such as bar code reading, Bluetooth and warnings
3	LCD	Monochrome Liquid Crystal display to show the decoded data, operational processes and so on.
4	Up / Down keys	Up/down keys used to move between menu items.
5	Operation keys (10)	Keys used for numerical input, backspace, Clear and Shift
6	Scanning window	Window for the CMOS camera
7	Product Label	Place for serial label with regulatory logo's
8	Charging contacts	Terminals used to charge the lithium-ion battery in the PX-36 when it is placed into a dedicated cradle
9	Trigger key	This key triggers the 2D barcode reader.
10	FCC warning label	This label shows the FCC regulatory information
11	Battery cover	Lid to keep the battery inside the PX-36
12	Battery cover lock	Used to lock / open the battery cover
13	Buzzer hole	Opening in the enclosure to let the sound of the buzzer out.
14	Hand strap hole	Hole for attaching a hand strap

6 Interface Specifications

6.1 Bluetooth

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

6.2 IrDA

6.2.1 Specifications

The PX-36 features an IrDA module that is compliant to the ver1.2 low power SIR specification.

6.2.2 Transmission Speed

Default transmission speed is set at 115.2 kbps. However, you can easily change the transmission rate to 57.6 kbps, 38.4 kbps, 19.2 kbps, 9600 bps, 4800 bps, or 2400 bps.

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	104 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 speed of image capture

*2 The LED intensity is > 50% in this area, compared to the intensity at the center of the optical axis. This is the 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 pattern is used for the following purposes:

1. Light source to indicate the appropriate reading range.
2. Light source for auto trigger operation.

The specifications for the aiming pattern are as follows:

- The optical axis of the field of view and the center of the aiming pattern coincide at a distance of $L=65\pm 20$ mm from the front edge of the scanner.
- The width of the aiming pattern is $80\%\pm 10\%$ of the width of the field of view at a distance of $L=65$ mm.

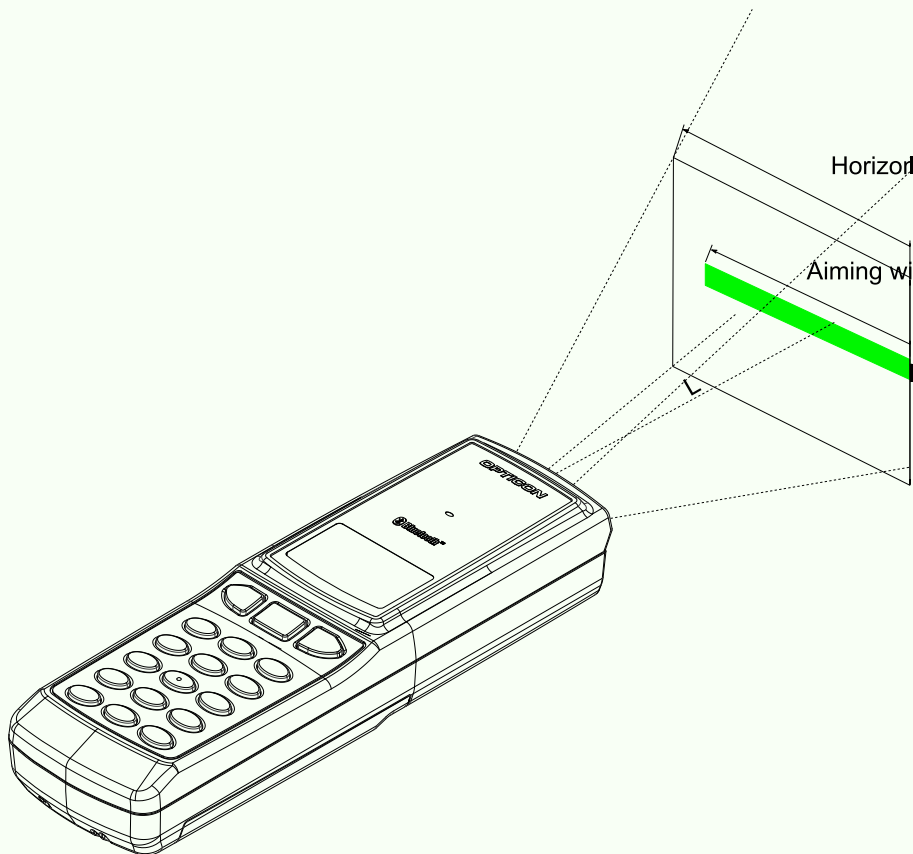


Figure 4: Aiming pattern

7.3 Imaging Range

L: Distance from the front edge of scanner	[mm]	40	60	80	100	120	140
H: Horizontal imaging range	[mm]	66	82	97	111	125	136
V: Vertical imaging range	[mm]	42	52	62	72	82	93

All values have an accuracy of $\pm 5\%$.

7.4 Barcode reading/decoding specifications

7.4.1 Conditions

When the aiming patten is positioned over the centre of a barcode label, the scanner is able to read it. The conditions for the following specifications are as follows unless otherwise specified in each section.

Temperature and humidity	Room temperature, room humidity
Ambient light	100 ~ 200 lx
Angles	Pitch: $\alpha = 0^\circ$, Skew: $\beta = 15^\circ$, Tilt: $\gamma = 0^\circ$
Curvature	$R = \infty$
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 7.4.2 for details.

<Bar code labels used>

1D codes:

Opticon test sheet

2D codes (incl. GS1 Databar, and stacked codes):

Labels printed by a dedicated barcode printer



7.4.2 Bar Code Test Sample

1D Bar Codes

<Code 39>

Resolution	Symbology	PCS	Size (mm)	No. of Digits
0.1 mm	Code 39	0.9	9 × 10	4
0.127 mm			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	0.9/0.2	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
0.169 mm	M	0.9	5 × 5	44
0.212 mm			6 × 6	
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	

Note: The size of the barcode does not include the quiet zones.

7.4.3 Scan Area and Depth of Field

The depth of field is measured from the edge of the data collector. The scanning range is within the circular arc centered on the scan origin.

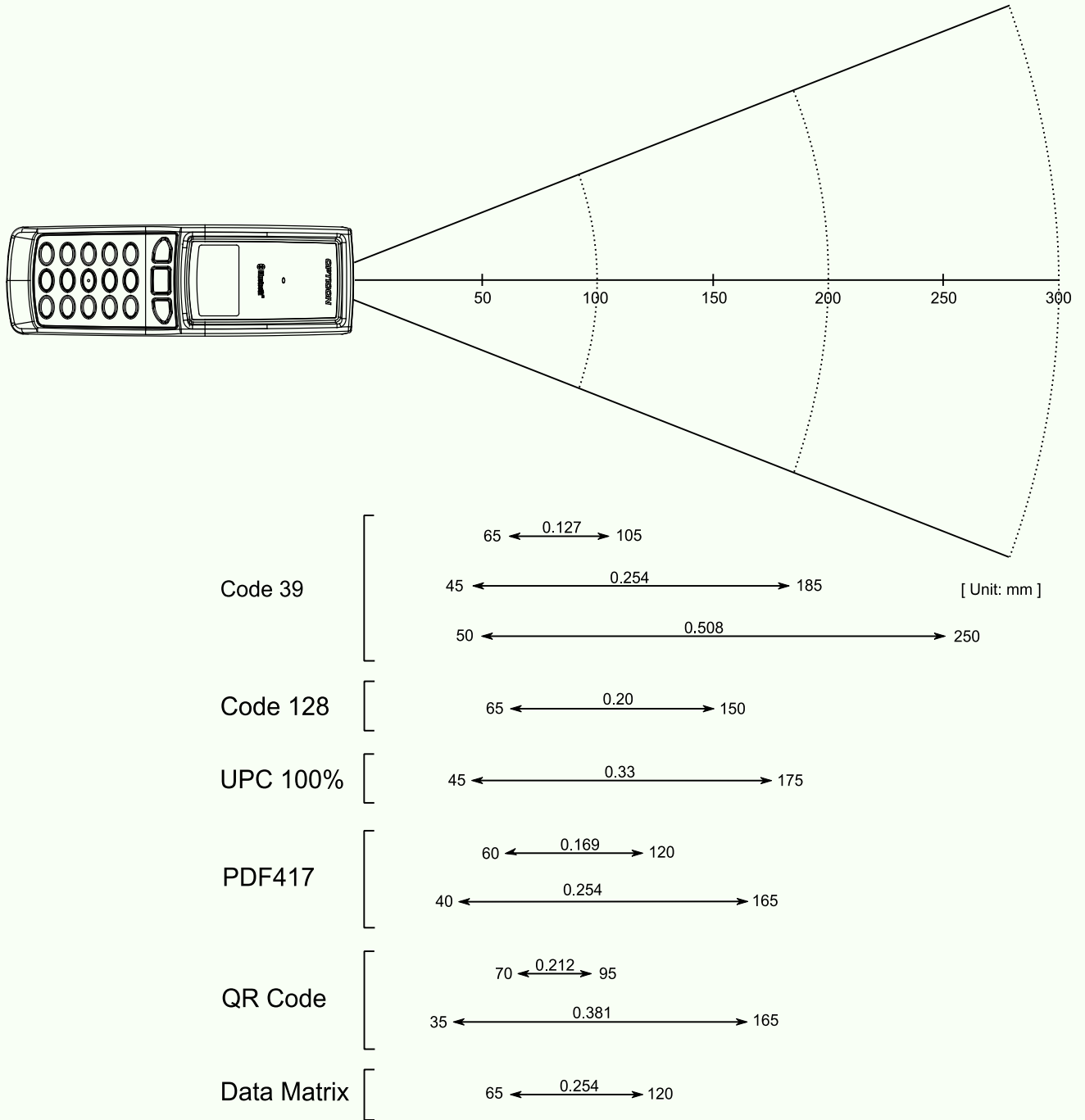


Figure 5: Scan Area and Depth of Field

7.4.4 Printed Contrast Signal (PCS)

0.2 or higher

<Conditions>

- MRD 12% and higher (70% or higher reflectivity of space and quiet zone)
- Distance 105 mm from the front edge of the scanner
- Bar code UPC (resolution 0.33 mm, PCS 0.2) specified in Section 8.1.

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

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

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

7.4.5 Minimum Resolution

- 1D bar code 0.1 mm (Code 39 specified in Section 7.4.2)
- GS1 Databar 0.169 mm (GS1 Databar Limited specified in Section 7.4.2)
- Stacked code 0.169 mm (PDF417, GS1 Databar Limited Composite specified in Section 7.4.2)
- 2D code 0.169 mm (QR Code specified in Section 7.4.2)
0.212 mm (Data Matrix specified in Section 7.4.2)

<Conditions>

- Bar code Above codes specified in Section 7.4.2
- Distance 75 mm from the front edge of the scanner
- Angle $\alpha = 0^\circ, \beta = +15^\circ, \gamma = 0^\circ$
- Curvature $R = \infty$

7.4.6 Max. Width Barcode

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 7.4.2
- Distance 135 mm from the front edge of the scanner
- Angle $\alpha = 0^\circ, \beta = +15^\circ, \gamma = 0^\circ$
- Curvature $R = \infty$

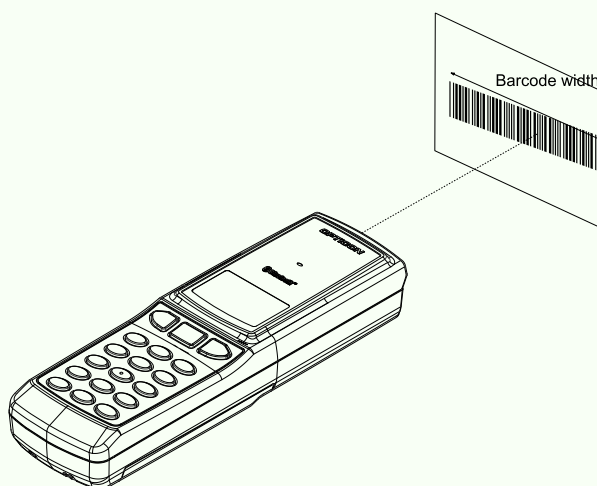


Figure 6: Barcode width

7.4.7 Pitch, Skew and Tilt

Pitch	$\alpha = \pm 50^\circ$
Skew	$\beta = \pm 50^\circ$
Tilt	$\gamma = \pm 180^\circ$

<Conditions>

Bar code	UPC (resolution 0.33 mm) specified in Chapter 7.4.2	
Distance	105 mm from the front edge of the scanner	
Curvature	R = ∞	
Angle	Pitch	$\beta = +15^\circ, \gamma = 0^\circ$
	Skew, Dead zone	$\alpha = 0^\circ, \gamma = 0^\circ$
	Tilt	$\alpha = 0^\circ, \beta = +15^\circ$

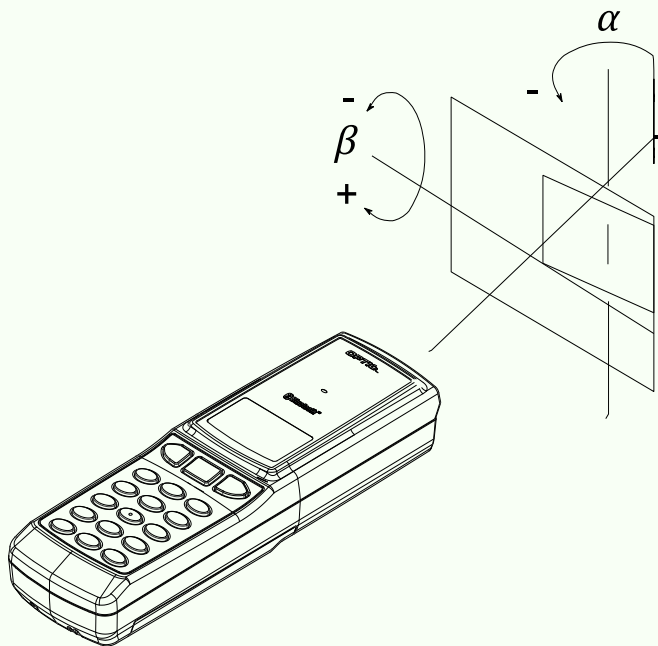


Figure 7: Pitch, Skew and Tilt

7.4.8 Curvature

0.33 mm 12-digit UPC	$R \geq 20$ mm
0.15 mm 10-digit Codabar (NW-7)	$R \geq 16$ mm

<Conditions>

Bar code	UPC (0.33 mm) and Codabar (0.15 mm) specified in Section 8.1.
Distance	85 mm from the front edge of the scanner
Angle	$\alpha = 0^\circ, \beta = +15^\circ, \gamma = 0^\circ$

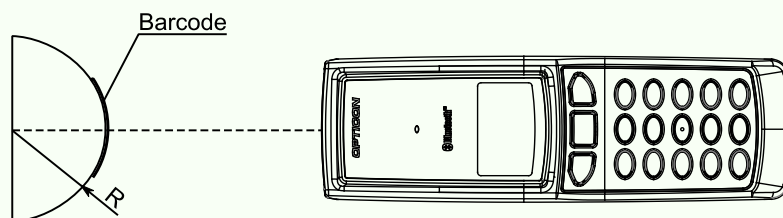


Figure 8: Curvature

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

7.4.9 Motion Tolerance

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

<Conditions>

Temperature / Humidity	Room temperature / room humidity
Ambient light	500 ~ 1000 lx
Distance	105 mm from the front edge of the scanner
PCS	0.9 or higher
Bar code	Refer to Section 7.4.2

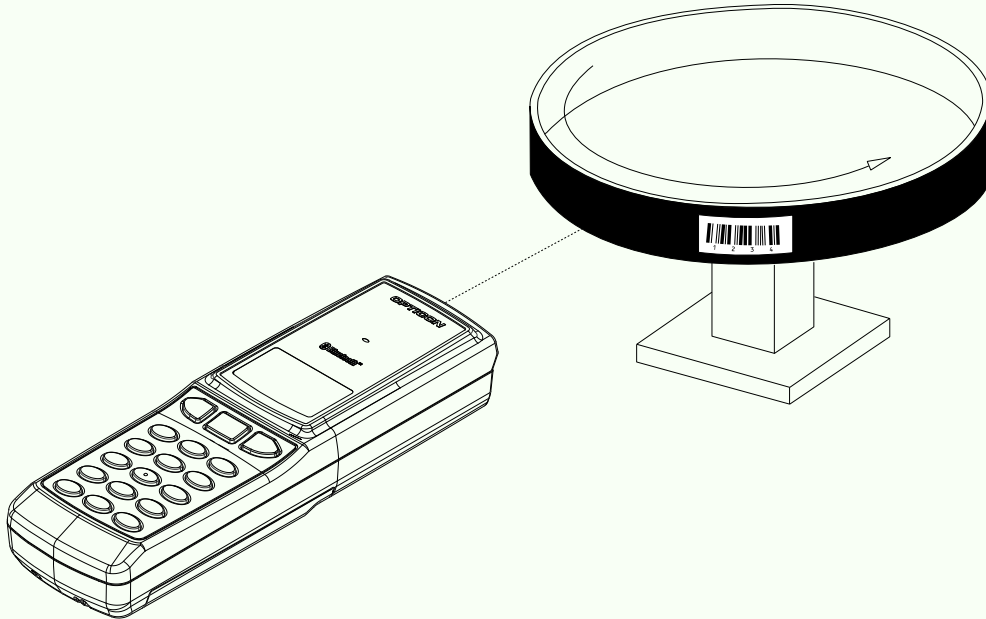


Figure 9: Motion tolerance

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

8 Environmental Specifications

8.1 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

8.2 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 7.4.2.
Distance	105 mm from the front edge of the camera module
Angle	$\alpha = 0^\circ$, $\beta = +15^\circ$, $\gamma = 0^\circ$
Curvature	$R = \infty$

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



8.3 Drop Impact Strength (without packaging)

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

Drop test: Drop the scanner 12 times in total (2 times at the 6 positions as indicated) from a height of 150 cm onto a concrete floor.

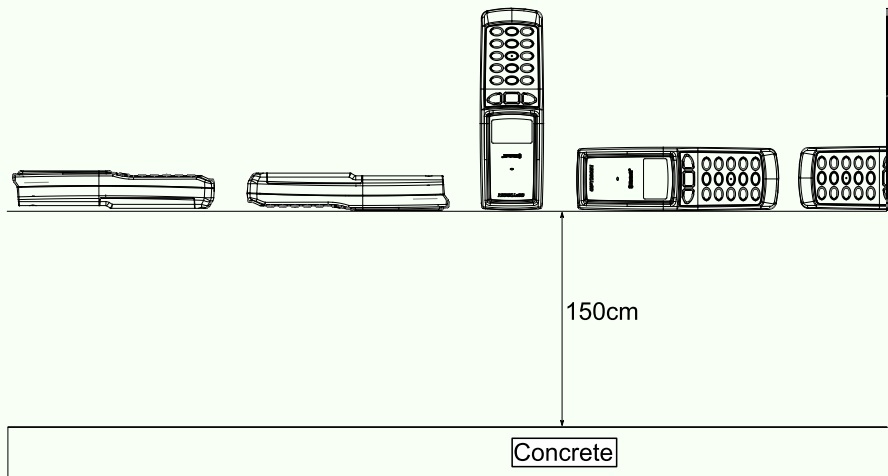


Figure 10: Drop test

8.4 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.

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

9 Regulatory Compliance

9.1 LED Safety

IEC 62471:2006 Exempt Group

9.2 Product Safety

EN60950-1:2006
IEC60950-1:2005

9.3 EMC

R&TTE Directive

- EN 55022:2010
- EN 301 489-1 V1.9.2
- EN 301 489-17 V2.1.1
- EN 300 328 V1.9.1

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 RF radiation exposure limits set forth an uncontrolled environment.



10 Labeling

The PX-36 has two labels, a serial number label and an FCC warning label.

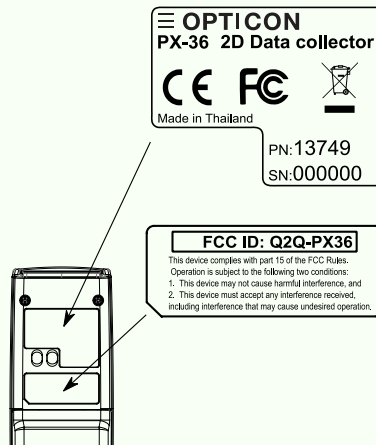


Figure 11: PX-36 product labels

10.1 Serial Number label

Detailed drawing:

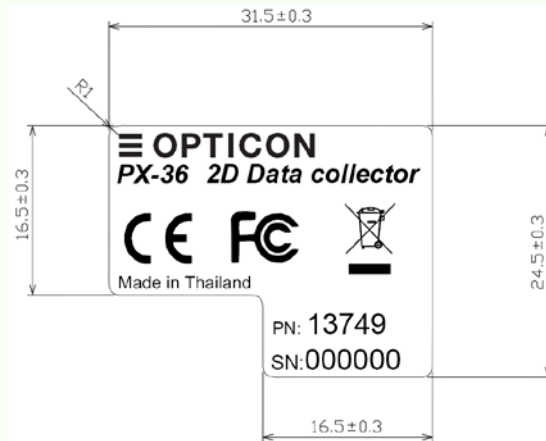


Figure 12: Serial number label

Label dimension:

31.5mm x 24.5mm. Tolerance ± 0.3 mm

Label material:

Consist of base + laminate protection against wear.

Base : PP film, Pantone Cool gray 1, thickness 80 μ m, backing with glue.

Laminate : PET film, clear, thickness 25 μ m, backing with glue.

Product number (PN:)

13749

Serial number (SN:)

Data: 6 digits numeric.

Serial number starts with 000001. Increment with 1 for each label. So, 000001, 000002, 000003, etc.

No double serial number may exist.

During production, the serial number is also programmed inside the PX-36's non volatile memory. API functions are available to retrieve that number.

Colors:

Pantone Black



10.2 FCC Warning Label

Detailed drawing:

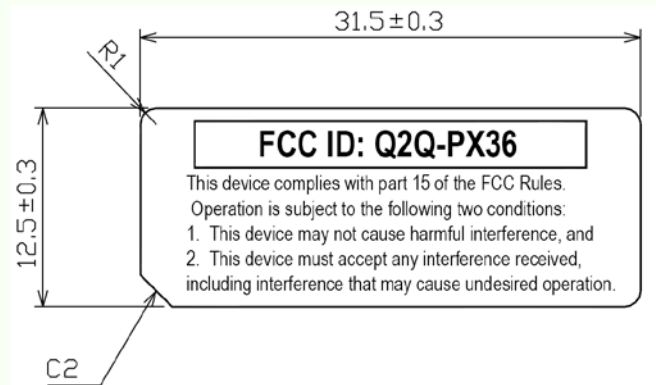


Figure 13: FCC warning label

Label dimension:

31.5mm x 12.5mm. Tolerance ± 0.3 mm

Label material:

Consist of base + laminate protection against wear.

Base : PP film, Pantone Cool gray 1, thickness 80 μ m, backing with glue.

Laminate : PET film, clear, thickness 25 μ m, backing with glue.

Colors:

Pantone Black

10.3 White box label

Size is 70mm x 25mm with a tolerance of ± 2 mm

Example labels: Avery 3421 or similar.

Label material: Paper, white, with permanent adhesive backing.

Article number: Standard code 39 + human readable text

Bar code data: 13749

Serial number: Standard code 39 + human readable text

Bar code data: The serial number. This should match that of the PX-36

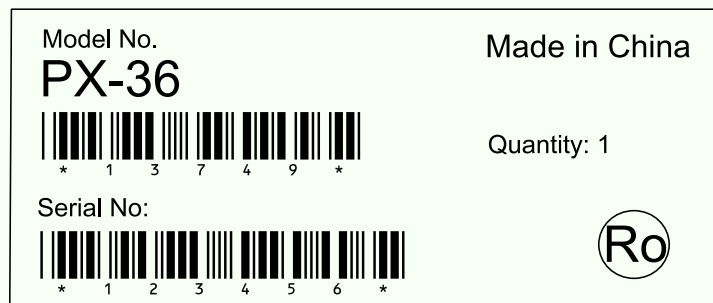


Figure 14: White box label

11 Packaging Specifications

11.1 Individual Packaging Specification (TBD)

Put the PX-36 in a protective foam bag and place it in an individual packing box, then place the accessories into the box. Close the box and affix a label to the side of the box. Size of the package after assembly: 164 (W) x 64 (D) x 40 (H) mm

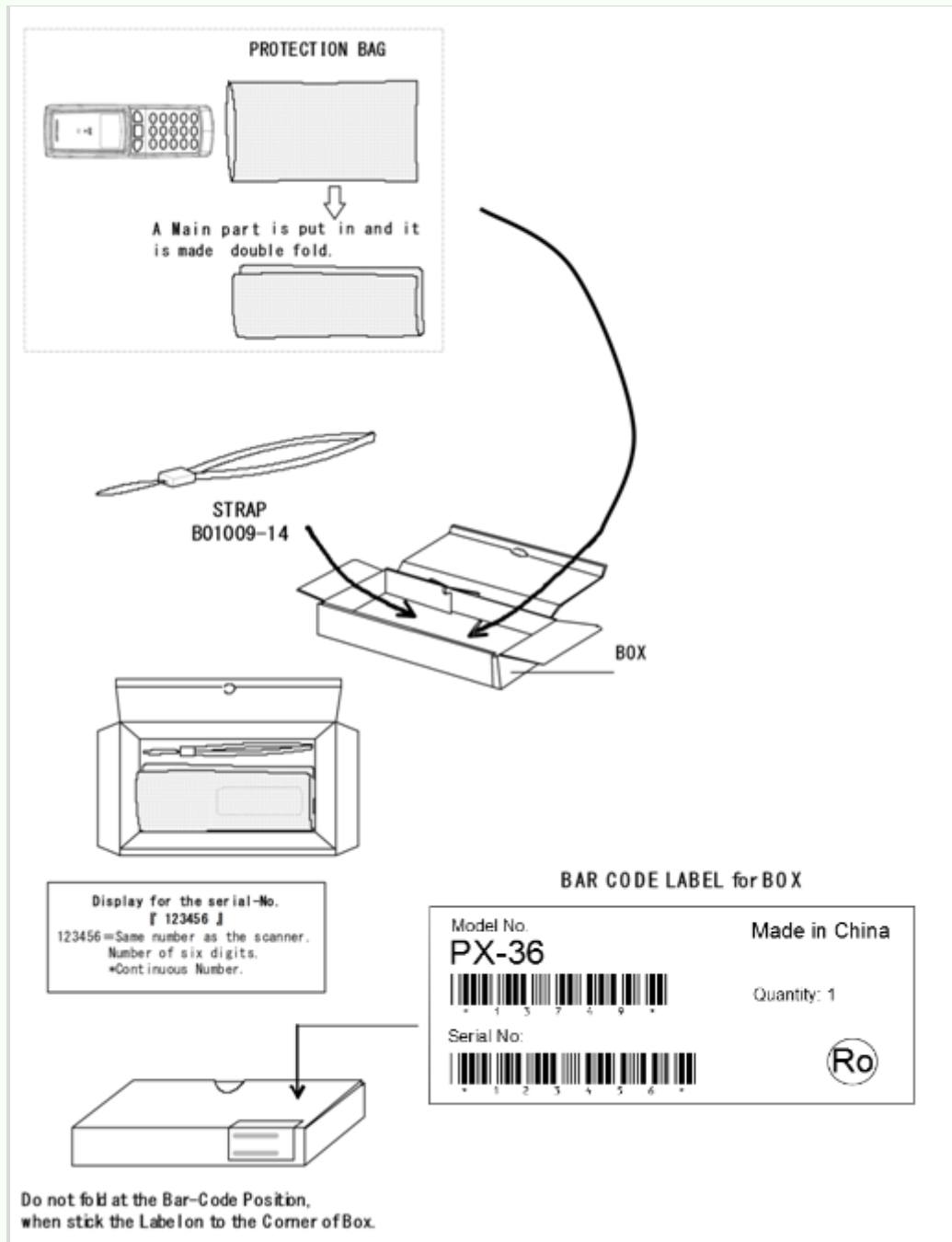
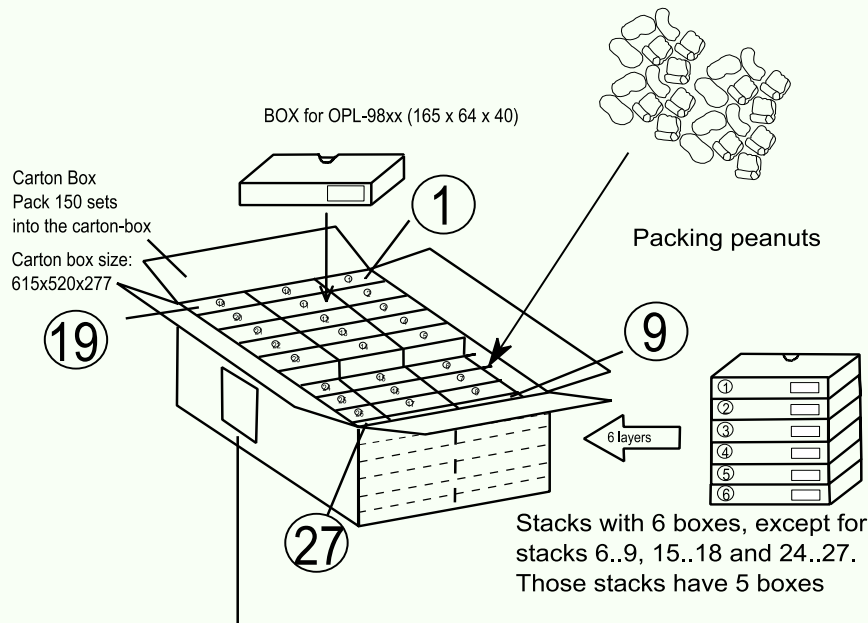


Figure 15: Individual packing

11.3 Collective Packaging Specification

Put 150 individually packaged data collectors in a collective packing box. The box can hold 162 boxes, so there will be some empty space in the shipping box. That should be filled by packing peanuts.

Dimensions: 615 mm (W) by 520 mm (D) by 277 mm (H).



Barcode serial label for packing box
Stick the labels on both front and back side of the box

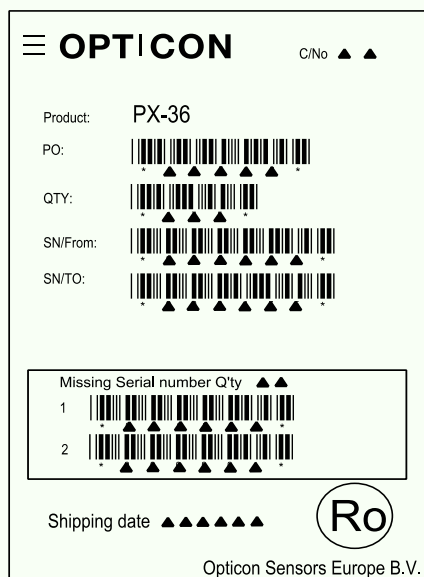


Figure 16: Shipment packing

Note: The “RO” mark labeled on the package tray or package box guarantees that the applicable product has passed our test of RoHS restrictions compliance (the restriction of the use of certain hazardous substances in electrical and electronic equipment, 2002/95 EC). However, this document does **not** have any legal weight in the European Union.

12 Safety precautions

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

12.1 Shock

Do not throw or drop the data collector.

Do not drop or put heavy items on this product.

12.2 Temperature Conditions

Do not use the data collector at temperatures outside the specified range.

Do not use near heat sources such as radiators, heat registers, stoves, or other types of devices that produce heat.

Do not use in areas exposed to direct sunlight for long periods of time.

12.3 Foreign Materials

Limit the use of the data collector near water or other liquids, as well as in extremely high humidity.

Do not immerse the data collector in liquids.

Do not use in extremely dusty environments.

Do not subject the data collector to chemicals.

Do not insert foreign substances into the device.

12.4 Other

Do not attempt to disassemble, modify or update this device.

Do not use near microwaves, medical devices, or RF-emitting devices.

The data collector may be damaged by high voltage discharges.

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

