



USB 2.0

Slim Portable

DVD/CD Writer

DVR-XD11 Series

PRODUCT SPECIFICATION

Revision 1.00

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PIONEER CHINA HOLDING CO., LTD

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1. Blank Page

2. Features

Maximum Write Speed	8X CAV at DVD-R/+ R 6X P-CAV at DVD-R DL/+ R DL 8X Zone CLV at DVD+RW 6X Zone CLV at DVD-RW 5X Zone CLV at DVD-RAM 24X Zone CLV at CD-R 24X Zone CLV at CD-RW
Maximum Read Speed	8X CAV at DVD-ROM SL/DL, DVD-R/RW, DVD-R DL, DVD+R DL 5X Zone CLV at DVD-RAM 24X CAV at CD-ROM, CD-R/RW
Silent Playback Speed	10X CAV for CD-DA/VCD playback 4X CAV for DVD-Video playback
High Speed DAE	24X CAV for CD-DA/VCD 8X CAV DVD-Video
Buffer Memory Size	1.0 Mbytes
Interface	USB 2.0

Clam Shell Mechanism

Supports "Buffer Under Run" protection (CD&DVD)

This product will obtain the certification of "Microsoft® Windows® Logo Program".(WHQL) (2008 server, Vista, Windows 7) (x86/x64)

This product complies to RoHS and WEEE Directive.

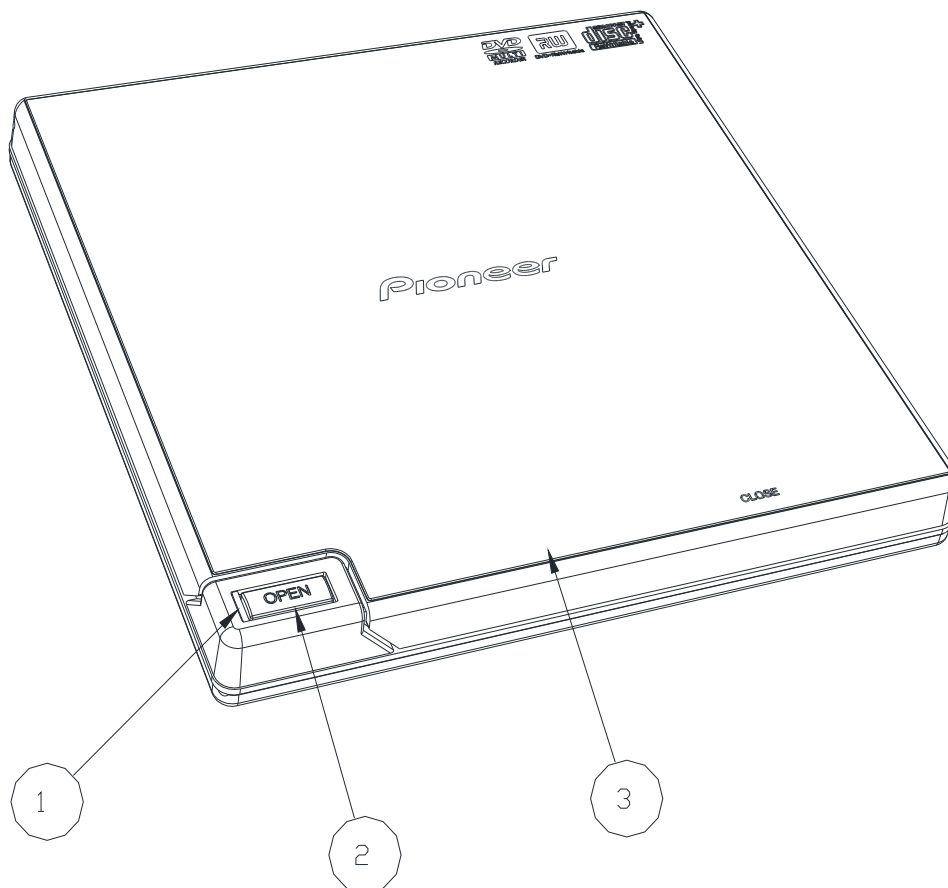
Disc Format supported	KODAK PhotoCD Single and Multi-session CD Extra(CDPLUS) VideoCD CD text data(Read/Write) CD-R discs(Read/Write) CD-RW discs(Read/Write) DVD-ROM DVD-R Ver.2.0 &2 .1 for General (Read/Write) DVD-R DL Ver.3.0 (Read/Write) DVD-RW Ver.1.0&1.1&1.2(Read/Write) DVD+R Ver.1.3 (Read/Write) DVD+R DL Ver1.0&1.1(Read/Write) DVD+RW Ver.1.3 (Read/Write) DVD+RW high speed Ver.1.0 (Read/Write) DVD-RAM Ver.2.0&2.1&2.2(*1)
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Notes

(*1) Details are in this section, 7.1: Disc Format

3 Name of Parts/Function/Setting

3.1. Front/Top



Power/Busy Indicator (1)

During PowerON: Lights dimly

During reading/writing: Lights

During disc cover open: Lights

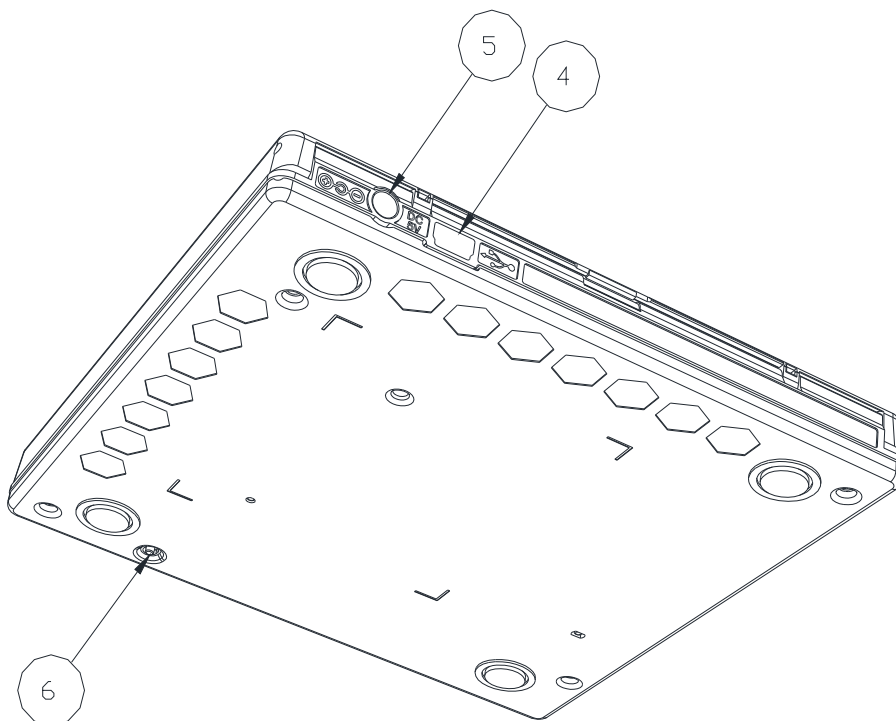
Open Button (2)

Press to open the disc cover.

Disc Cover (3)

Press the Open button to open the disc cover then place a CD or DVD disc onto the tray with the label facing up. Close the disc cover gently.

Do not manually force open the disc cover. Use the Forced Open Lever to open the disc cover during Power off.

3.2. Rear \ Bottom**USB2.0 Interface (4)**

USB2.0 Mini-B Connector

DC Input (5)

AC adapter Connector

Forced Open Lever (6)

Use to open the disc cover when the drive is not powered.

If the disc cover fails to open when the Open button is pressed, turn the power to the drive Off and wait approximately one minute until the disc stops spinning before trying to open the disc cover.

3.3. ATAPI Command Set

Code	Command	Code	Command
00h	TEST UNIT READY	52h	READ TRACK INFORMATION
03h	REQUEST SENSE	53h	RESERVE TRACK
04h	FORMAT UNIT	54h	SEND OPC INFORMATION
12h	INQUIRY	55h	MODE SELECT (10)
1Bh	START / STOP UNIT	58h	REPAIR TRACK
1Eh	PREVENT / ALLOW MEDIUM REMOVAL	5Ah	MODE SENSE (10)
23h	READ FORMAT CAPACITIES	5Bh	CLOSE TRACK / SESSION
25h	READ CAPACITY	5Ch	READ BUFFER CAPACITY
28h	READ (10)	5Dh	SEND CUE SHEET
2Ah	WRITE (10)	A1h	BLANK
2Bh	SEEK	A3h	SEND KEY
2Eh	WRITE AND VERIFY (10)	A4h	REPORT KEY
2Fh	VERIFY (10)	A5h	PLAY AUDIO (12)
35h	SYNC CACHE	A7h	SET READ AHEAD
3Bh	WRITE BUFFER	A8h	READ (12)
3Ch	READ BUFFER	AAh	WRITE (12)
42h	READ SUB-CHANNEL	ACh	GET PERFORMANCE
43h	READ TOC	ADh	READ DISC STRUCTURE
45h	PLAY AUDIO (10)	B6h	SET STREAMING
46h	GET CONFIGURATION	B9h	READ CD MSF
47h	PLAY AUDIO MSF	BBh	SET CD SPEED
4Ah	GET EVENT STATUS NOTIFICATION	BDh	MECHANISM STATUS
4Bh	PAUSE / RESUME	BEh	READ CD
4Eh	STOP PLAY / SCAN	BFh	SEND DISC STRUCTURE
51h	READ DISC INFORMATION		

4. Power Supply/Setting

4.1. Input Voltage

Normal CD Input Voltage	+5 V
Voltage Allowance	+/- 5% (USB VBUS)
Ripple	Less than 200 mVp-p

4.2. Current and Power Consumption

Conditions		+5V Current [mA]	Power Consumption [W]	
Sleep (average)	Sleep command	50	0.25	
Stand-by (average)	Laser OFF, Motor OFF	150	0.75	
Idle (average)	Laser ON, Motor ON	500	2.50	
Write (average)	DVD	DVD+RW 8X Write	1000	5.00
	CD	CD-RW 24X Write	1000	5.00
Read (average)	DVD	DVD-ROM (SL) 8X Read	650	3.25
	CD	CD-ROM 24X Read	650	3.25
Random Access	DVD-ROM 100%	1000	5.00	
Maximum (Peak)	Start up	1,300/2ms	--	
	DVD-ROM Full stroke Seek	1,300/2ms	--	

Note: The current is measured with current probe and applied 1000Hz LPF to reject high Frequency spikes.

5. Installation

5.1. Mounting direction

This drive can be used in both Horizontal and Vertical orientations.

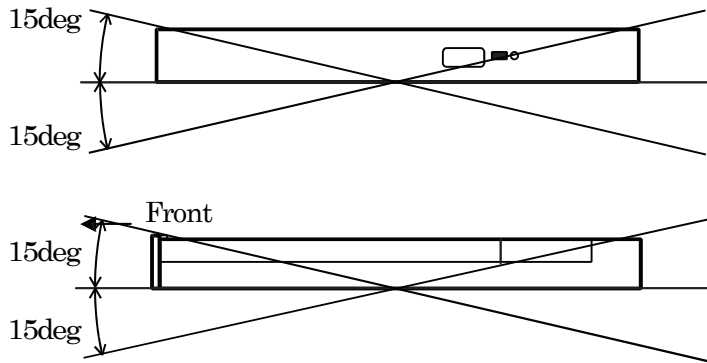


Figure5-A:MountingDirection,Horizontal

6. Environmental Conditions

6.1. Temperature and Humidity

Drive	Test items	Min.	Typ.	Max.	Unit	Remarks
Operating	Temperature	+5		+35	°C	within 20°C/ hour deviation within 20%/ hour deviation No condensation
	Humidity	5		85	%R	
	WetBulb temp			29	°C	
Non-Operating	Temperature	-40		+60	°C	within 10°C/ hour deviation within 10%/ hour deviation No condensation
	Humidity	5		90	%R	
	WetBulb temp			29	°C	
Transportation (packaging condition)	Temperature	-40		+60	°C	within 20°C/ hour deviation within 20%/ hour deviation No condensation
	Humidity	5		90	%R	
	WetBulb temp			29	°C	

6.2. Vibration

Unit condition	Test items	Test condition	Criteria
Operating	Acceleration	1.96 m/s ² {0.2G} o-p during read and write operation 1.47 m/s ² {0.15G} o-p during CD Audio play	No error is found during the operation after this test.
	Frequency	10 ~500 Hz	
	Sweeping Time	1 octave/minute	
	Testing Time	30 minutes/one direction (3 directions in total)	
Non-operating	Acceleration	14.7 m/s ² {1.5G} rms	No damage is found on the drive after this test
	Frequency	10 ~500 Hz	
	Sweeping Time	1 octave/minute	
	Testing Time	30 minutes/one direction (3 directions in total)	
Transportation (packaging condition)	X-direction	5-50Hz , 6.86 m/s ² {0.7G} 15 minutes	The drive works normally after each cycle test.
	Y-direction	5-50Hz , 6.86 m/s ² {0.7G} 15 minutes	
	Z-direction	5-30Hz , 10.78 m/s ² {1.1G} 30-50Hz , 6.86 m/s ² {0.7G} 75 minutes	

6.3. Shock

Drive condition	Test item	Test Condition	Criteria
Operating	Acceleration	19.6 m/s ² {2 G} o-p during read and play 14.7 m/s ² {1.5G} o-p during write operation	No error is found during the operation. After this test.
	Pulse	11 msec (half-sine)	
	Number of pulse	10 pulse x 10sec interval x 3 directions	
Transportation (packaging condition)	Height	80 cm	The test is done with packaging condition. The drive works normally after this test.
	Direction	1 corner, 3 edges, 6 faces	

6.4. ESD

Drive condition	Test Item	Test Condition	Criteria
Operating	Voltage	+/- 6kV (contact) +/- 10 kV (in air)	Standard: IEC61000-4-2 No drive error.
	Charge Capacitor	150 pF	
	Discharge Resistor	330 ohm	
Non-Operating	Voltage	+/- 8 kV (contact) +/- 15kV (in air)	Standard: IEC61000-4-2 No hardware damage.
	Charge Capacitor	150 pF	
	Discharge Resistor	330 ohm	

6.5. Altitude

Drive condition	Min.	Typ.	Max.	Units	Remarks
Operating	0	-	3,000	m	
Non Operating	0	-	12,000	m	

7. Specifications

7.1. Disc Format

DISC Format	Write	Read
DVD (DVD-5; Single layer, Single side 4.7GB)	N/A	Y
DVD (DVD-9; Dual layer, Single side 8.54GB)	N/A	Y
DVD (DVD-10; Single layer, Dual side 9.4GB)	N/A	Y
DVD (DVD-18; Dual layer, Dual side 17.09GB)	N/A	Y
DVD-R Ver.1.0 (for authoring 3.95GB)	N	Y
DVD-R Ver.2.0 (for authoring 4.7GB)	N	Y
DVD-R Ver.2.0 (for general 4.7GB)	Y	Y
DVD-RDL(DualLayer)Ver.3.0(8.54Gbytes)	Y(*1)	Y
DVD Download CSS Managed Recording Ver1.0	Option	Y
DVD-RW Ver.1.0, 1.1 and 1.2	Y	Y
DVD+R Ver.1.3	Y	Y
DVD+R-DL (Double Layer) Ver1.0 and 1.1(8.54Gbytes)	Y(*1)	Y
DVD+RW Ver.1.3	Y	Y
DVD+RW high speed Ver. 1.0	Y	Y
DVD-RAM Ver.1.0	N	Y
DVD-RAM Ver.2.0 and 2.1and 2.2	Y	Y
DVD-RAM Ver.2.2[RAM2(Class 1)	N	Y
CD-ROM Mode1	N/A	Y
CD-ROM XA Mode2 (form 1, form2)	N/A	Y
Photo CD (single and multiple session)	Y(*1)	Y
Video CD	Y(*1)	Y
CD-DA (CD Audio)	Y(*1)	Y
CD-Extra	Y(*1)	Y
Mixed-CD	Y(*1)	Y
CD-Text	Y(*1)	Y
CD-R	Y	Y
CD-RW (Supports AM2)	Y	Y
HS CD-RW (Supports AM2)	Y	Y
US CD-RW (Supports AM2)	Y	Y
US+ CD-RW (Supports AM2)	Y	Y

Note:

(*1) Recording Software's support is required.

7.2. Read Speed

DISC Format	Transfer Speed (at Maximum / Rotational Speed)
DVD-ROM(Single layer)	8X CAV (4,700 rpm)
DVD-ROM(Dual layer)	8X CAV (5,100 rpm)
DVD-R Ver. 1.0	3.6X CAV (2,350 rpm)
DVD-R / +R (Except DVD-R Ver. 1.0)	8X CAV (4,700 rpm)
DVD-R DL (Dual Layer)	8X CAV (5,100 rpm)
DVD+R DL (Double Layer)	8X CAV (5,100 rpm)
DVD-RW / +RW	8X CAV (4,700 rpm)
DVD-RAM	5X Zone CLV
DVD-Video (Single layer)	4X CAV (2,350 rpm)
DVD-Video (Dual layer)	4X CAV (2,600 rpm)
8cm DVD-ROM, DVD-R/RW	5.3X CAV (4,700 rpm)
8cm DVD-Video	2.7X CAV (2,350 rpm)
CD-ROM	24X CAV (4,900 rpm)
Video CD	10X CAV (2,000 rpm)
CD-DA, CD-TEXT, Mixed-CD, CD-Extra (Play audio)	10X CAV (2,000 rpm)
CD-DA, CD-TEXT, Mixed-CD, CD-Extra (Data extraction)	24X CAV (4,900 rpm)
CD-R	24X CAV (4,900 rpm)
CD-RW	24X CAV (4,900 rpm)
8cm CD-ROM, CD-R/RW, CD-DA	16X CAV (4,900 rpm)
8cm CD-DA(Play audio)	6.1X CAV (2,000 rpm)

Note: Disc rotation speed becomes slow automatically and read retry is performed if uncorrectable read error is detected at a normal reading speed.

The lowest speed which may be applied in the case of read retry is 1X CLV at DVD reading or 4XCLV at CD reading. Not finalized disc is read with speed of most inner radius write speed with CLV format.

7.3. Write Speed

Media Type	Transfer Speed
DVD-R	2X CLV
	4X P-CAV
	6X P-CAV
	8X CAV
DVD-R DL (Dual Layer)	2X CLV
	4X P-CAV
	6X P-CAV
DVD-RW	2X CLV
	4X Zone CLV
	6X Zone CLV
8cm DVD-R	2X CLV
	4X P-CAV
8cm DVD-RW	2X CLV
	4X Zone CLV
DVD+R	2.4X CLV
	4X P-CAV
	6X P-CAV
	8X CAV
DVD+R DL (Double Layer)	2.4X CLV
	4X P-CAV
	6X P-CAV
DVD+RW	2.4X CLV
	4X Zone CLV
HS DVD+RW	2.4X CLV
	4X Zone CLV
	6X Zone CLV
	8X Zone CLV
8cm DVD+R	2.4X CLV
	4X P-CAV
8cm DVD+RW	2.4X CLV
	4X Zone CLV
DVD-RAM	2X CLV
	3X CLV
	5X Zone CLV
CD-R	10X CLV
	16X Zone CLV
	20X Zone CLV
	24X Zone CLV

CD-RW	MS	4X CLV
	HS & US	10X CLV
	US & US+	16X Zone CLV
	US	20X Zone CLV
24X Zone CLV		
8cm CD-R		10X CLV
8cm Multi Speed CD-RW		4X CLV
8cm High Speed CD-RW		10X CLV

Note:

(*1) Recording Software's support is required.

7.4. Applicable Write Format

DVD-R	Disc at Once Incremental Recording (Multi-Border Recording)
DVD-RW	Restricted Overwriting Disc at Once Incremental Recording (Multi-Border Recording)
DVD+R	Sequential Recording (Multi-Session Recording)
DVD+RW	Random Recording
DVD-RAM	Random Recording
CD-R and CD-RW	Disc at Once Track at Once Session at Once Packet Recording (Multi-Session Recording)

7.5. Disc Size Diameter

φ120mm / φ80mm

* This drive does not support Non-Standard discs such as Heart shaped or Biz Card size discs.

* This drive does not support any damaged discs; such as cracked or warped discs.

7.6. Sustained Data Transfer Rate

Data Read

Parameter		Inner	Ave.	Outer	Unit	Note
Sustained	DVD	4,455	-	10,800	Kbytes/sec	3.3X-8X CAV mode over16 Block Transfer
	DVD- RAM	4,155	-	6,925		3X-5X Zone-CLV mode over16 Block Transfer
	CD	1545	-	3,600		10.3-24X CAV mode over16 Block Transfer

Note: The value of “DVD” is specified when DVD-ROM Single Layer Disc is used.

The transfer rate at CD-ROM is specified when 1.3m/s scanning velocity disc is played.

Data Write

Parameter		Inner	Ave.	Outer	Unit	Note
Sustained	DVD	2,700	-	10,800	Kbytes/sec	8X Zone-CLV DVD-R write (2X-4X-6X-8X)
		3,240	-	10,800		8X Zone-CLV DVD+R write (2.4X-4X-6X-8X)
	DVD- RAM	4,155	-	6,925		3X-5X Zone-CLV write
	CD	1,500	-	3,600		24X Zone-CLV CD-R write (10X-16X-20X-24X)

Note: The above values are theoretical value and actual performance might be lower than specs when reading due to condition of disc. The drive automatically slows down disc rotation speed to ensure data reading when imbalanced, warped or scratched disc is set. At this time, data transfer rate becomes lower than its specifications.

7.7. Buffer Memory Size

1.0 Mbytes

7.8. Access Time/Seek Time

Parameter		Ave	Unit	Note
Access Time	DVD	130	msec	Random Average
	DVD-RAM	240		
	CD	130		
Full Stroke Seek Time	DVD	300	msec	Average
	DVD-RAM	600		
	CD	300		

Note: The value of “CD” is

specified when CD-ROM Mode1 Disc is used.

The value of “DVD” is specified when DVD-ROM Single Layer Disc is used.

7.9. Initializing Time/Starting Time/Stop Time

Parameter		Spec [sec] (Typical)	Remarks
Initializing Time	CD	12	The period between disc spin up and pause on the first address after TOC reading. Takes 4 more sec. for BCA disc.
	CD-R	15	
	CD-RW	15	
	DVD-Single	12	
	DVD-Dual	15	
	DVD-R (+R)	18	
	DVD-RW (+RW)	18	
	DVD-R (+R) DL	25	
	DVD-RAM	35	
Starting Time	DVD	3	The period between spindle stop condition and pause on the track number one. (after initialization, in response to start command)
	CD	3	
Stop Time	DVD	6	The period between pause condition and spindle stop condition by stop command.
	CD	6	

Note: The value of "CD" is specified when CD-ROM Mode1 Disc is used.
 The value of "DVD" is specified when DVD-ROM Single Layer Disc is used.

7.10. Acoustic

Item	Spec. (TYP)	Remarks
Sound pressure	Less than 45 dB(A)	Without loading operation, on 1m horizontal setting, with 0.25 g-cm imbalance disc at 4,900rpm. (Sequential read and random seek operation)

8. Dimension/Weight/Eject Distance / Packing

8.1. Dimension/Weight/Eject Distance/Packing

Dimensions: W133mm x D133mm x H14.8mm (excluding foot pad)

NetWeight: 220 g (max)

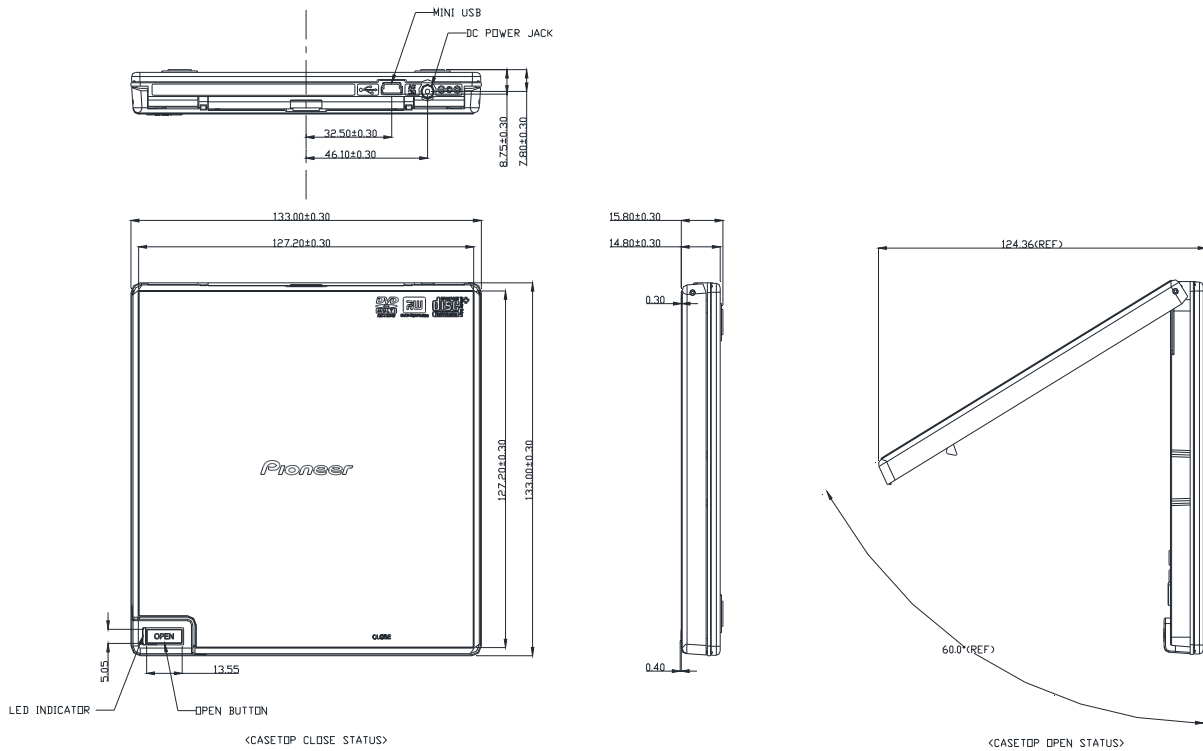


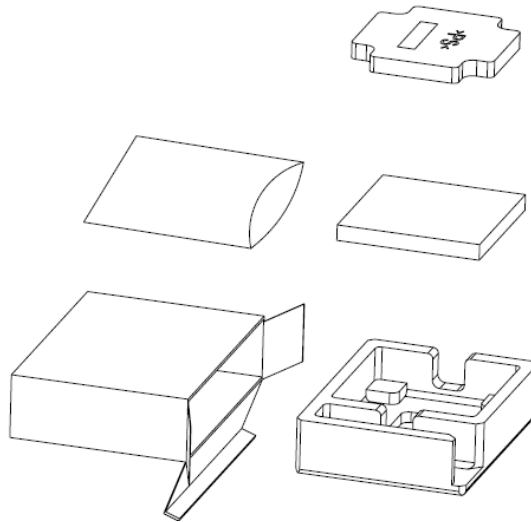
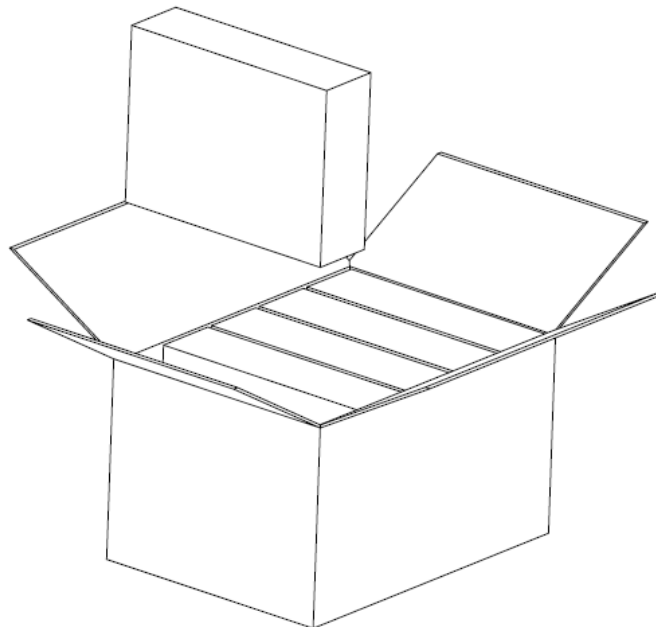
Figure 8-A: Drive Dimensions

8.2. Dimensions and Weight of Packing Box

(30pcsbulkpackaging)

Dimensions: W 320mm x D 234mm x H 187mm

GrossWeight: 2.7 Kg

8.3. Packing Condition**Figure 8-B: Packing Condition: Gift Box****Figure 8-C: Packing Condition: Carton**

8.4. Shipping Pallet

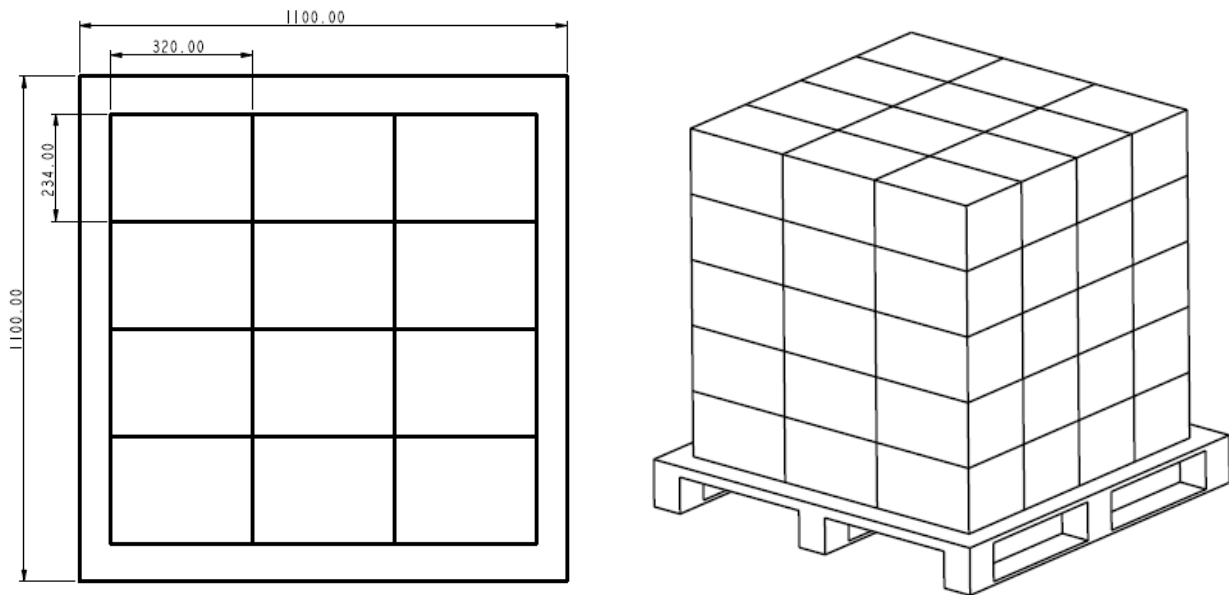


Figure 8-D: Shipping Pallet

Retail packing

Pallet DIM.:110.0 x 110.0 cm

Carton O.D.:32.0 x 23.4 x 18.7 cm

Load/Sea/Air shipping: 5 layer / pallet = 60 carton / pallet = 300 set / pallet

9. Safety and Radiation

9.1. Safety Regulation

UL60950-1 Second Edition
CSA C22.2 No.60950-1-07 2nd Edition
EN 60950-1:2006+A11
IEC 60950-1:2005 (2nd Edition)

9.2. Laser

IEC60825-1:2007
EN 60825-1:2007
FDA 21 CFR Sub chapter J

9.3. EMC

FCC (FCC CFR 47 Part 15 Subpart B and CISPR 22 and Canada ICES-003 Class B)
CE Marking (EN55022:2006 A1:2007, Class B, EN55024:1998+A1:2001+A2:2003:
Declaration of Conformity)
C-Tick (AS/NZS CISPR22:2009, Class B(CISPR 22 Ed. 6.0:2006) Declaration of Conformity)
Taiwan EMC (CNS13438:2006 Class B: Declaration of Conformity)
VCCI (V-32009.04)

10. Reliability

10.1. MTBF

(Mean Time Between Failure)

60,000 POH (Duty : Read 15%, Write5%)

10.2. MTTR

(Mean Time to Repair)

0.5 H

10.3. Disc Cover Open Durability

5,000 Times

10.4. Disc Attach / Detach

20,000 Times

10.5. Interface connector Attach / Detach

1,500 Times

11. Change History

Rev.	Date	Page	Changes (Old ---> Revised)
0.90	2011/11/15	n/a	Initial draft.
0.95	2012/02/15	n/a	First release.
1.00	2012/06/07	9	Modify Power consumption spec.
		20,21,22	Modify Packing information.

12. Notes

- * Specifications and drawings are subject to change according to its improvement.
- * “Windows XP / Vista / Windows7” is an abbreviation of “Microsoft Windows XP , or Vista, or Windows 7 Operating System”.
- * Microsoft, Windows are trademarks of Microsoft Corporation.

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DVD/CD Writer

DVR-XD11 series
PRODUCT SPECIFICATION

July 7th, 2010

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