

# SONY®

CRX - 1611

## CD-R/RW Drive Unit

CRX - 1611

### CD-R/RW Drive Unit

User's Guide

*Printed in Australia*

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*This manual is subject to change without notice.*

User's Guide

*PN: CRX1611-1AUS*

## Owner's Record

The model and serial numbers are located on the top of the drive. Record these numbers in the spaces provided below. Refer to them whenever you call upon your sales representative regarding this product.

Model No.

Serial No.

## Safety Regulations

### WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

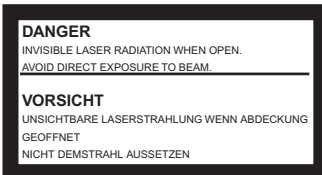
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

### CAUTION

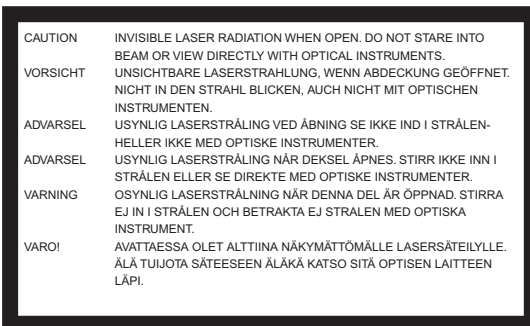
As the laser beam in this CD writer is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

The use of optical instruments with this product will increase eye hazard.

The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation.



This label is located on the drive unit's internal chassis.



This label is located on the top of the drive unit enclosure.

This unit uses CD-RW discs with the following mark.



This unit uses CD-R discs with the following mark.



This unit uses CD-ROM discs with the following mark.



When you use this unit as a CD player, use compact discs with the following mark.



### WARNING —

You are cautioned that any changes or modifications not expressly approved in this manual will void your warranty.

### Note:

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. 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 in accordance with 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 can be determined 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 and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the
- Consult the dealer or an experienced radio/TV technician for help.

This CD-R/RW drive unit is classified as a CLASS 1 LASER PRODUCT.

CLASS 1  
LASER PRODUCT

LASER KLASSE 1  
PRODUKT

The CLASS 1 LASER PRODUCT label is located at the top of the enclosure.

***Trademarks***

- MS-DOS is a registered trademark of Microsoft Corporation.
- IBM PC, PC/XT, and PC/AT are registered trademarks of International Business Machines Corporation.
- HP Vectra is a registered trademark of the Hewlett-Packard Company.
- Molex is a registered trademark of Molex, Inc.
- AMP is a registered trademark of AMP, Inc.
- Macintosh is a registered trademark of Apple Computer.

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# Introduction

## Features

The CRX1611 is an internal CD-R/RW (Compact Disc Recordable/ReWritable) drive unit designed for use with personal computers.

### General

- Buffer UnderRun Protection.
- 2 Mbyte buffer memory
- 5 1/4 inch half-height drive form factor.
- DSS Vibration Reduction System.

### Supported disc formats

- Reads and writes data in each: CD-DA, CD Extra, CD-Rom (mode 1), CD-Rom XA (mode 2 form 1 & 2), CD-I (mode 2 form 1 & 2), Video CD (MPEG 1), UDF & CD-text.
- Reads data in Photo CD (Single and Multi session), Karaoke CD, Enhanced CD & I-Track CD.
- The CRX-1611 conforms to the specifications set out in the "Orange Book Part II and Part III".

### Supported write methods

- Disc At Once, Session At Once, Track At Once, Variable Packet, Fixed Packet (Max packet size 1200KB) and Track Reservation.

### Performance

- Supports CD-R write speeds of 4X 8X and 16X.
- Supports CD-RW write speeds of 4X.
- Supports HighSpeed CD-RW write speeds of 8X, 10X.
- Fast access times ensuring reliable high-speed data access.

### Audio

- Outputs 16-bit digital data over the ATA interface.
- Audio line output and headphones jack for audio CD playback.

## ■ Software requirements

To use this CD drive you will require two types of software, one to enable the drive as a CD reader the other to enable the drive as a CD writer.

**Reader:** This drive uses a standard ATAPI interface. Most modern operating systems have driver software built in to enable the use of this drive as a CD reader. This includes Windows 95, 98, Me, NT 4.0, 2000 and Macintosh computers with an IDE interface.

*DOS drivers can be downloaded from:*

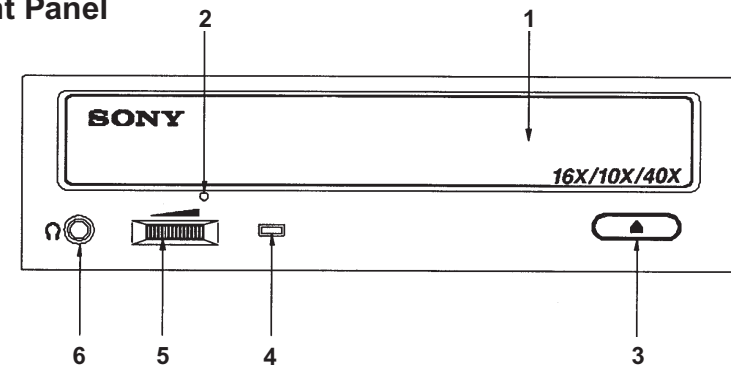
<http://www.sony.com.au/support/itp>

**Writer:** Authoring software will be required. There are many varieties. Please be sure that the version of software you are using is compatible with the CRX-1611. You should check this on the software manufacturers web site or at:

<http://www.sony.com.au/support/itp>

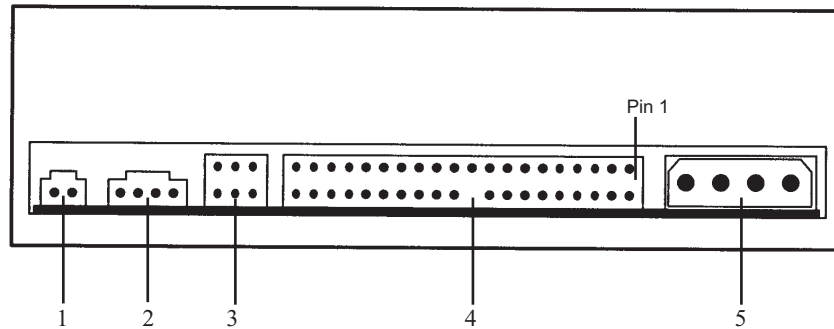
# Parts and Controls

## Front Panel



- 1 Disc tray**  
Accepts a CD-ROM, CD-R and CD-RW disc on its tray.
- 2 Emergency eject hole**  
Insert a fine rod into this hole to eject the tray manually in emergencies.
- 3 Eject button**  
Opens and closes the disc tray.
- 4 Busy indicator**  
This indicator shows the unit's status in various phases of operation.
  - \* Green - seek, read and write.
  - \* Flashing Green - Writing CD
- 5 Volume control**  
Controls the volume of the analog audio output provided via a headphones jack.
- 6 Headphones jack**  
Provides two channel analog audio output.

## Rear Panel



- 1 Digital Audio
- 2 Analogue Audio
- 3 Master / Slave Jumpers (refer to page 09 for details)
- 4 Interface Connector (IDE bus)
- 5 DC INPUT (power-in) connector

## Precautions

### ■ Installation

- Avoid placing the drive in a location subject to:
  - high humidity
  - high temperature
  - excessive dust
  - mechanical vibration
  - direct sunlight.

We recommend to use the drive in a horizontal or vertical position. Do not use it in a tilted position.

### ■ Operation

- Do not move the drive during operation. This may cause it to malfunction during reading or writing.
- Avoid exposing the drive to sudden changes in temperature as condensation may form on the lens inside the drive as a result. Should the surrounding temperature suddenly rise while the drive is on, wait at least one hour before you turn off the power. Operating the drive immediately after a sudden increase in temperature, may result in a malfunction during reading or writing.

### ■ Transportation

- Close the disc drawer before moving the drive.
- Keep the original packing materials for future transport of the drive.

# System Setup

To use this CD-R/RW device, the following components are required:

- Personal Computer with an IDE bus (ATA compliant)
- IDE Interface cable (40 to 40 pin flat cable)
- Software -

### Device driver (for reading discs only) -

This is included with most modern operating systems.  
DOS device drivers can be downloaded from:

<http://www.sony.com.au/support/itp>

### Authoring Software (for writing discs) -

Check with the software manufacturers web site to ensure the version of your software supports the CRX-1611.

A list of compatible software can also be found at:

<http://www.sony.com.au/support/itp>

# Installing the Drive in Your Computer

Consult your computers User Manual for instructions on how to add new hardware. Be sure to follow their anti-static precautions.

## Preparation

The following parts and tools will be required to mount the drive in your computer:

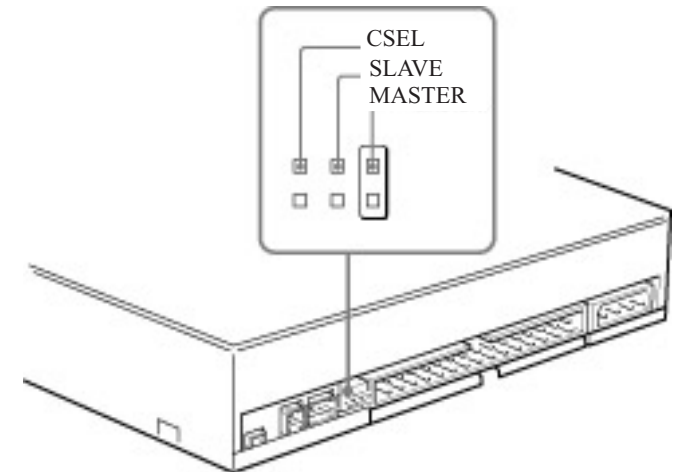
- Four screws 3 mm in diameter and 6 mm in length.
- A screwdriver to suit.
- Two mounting rails if your computer has mounting tracks.

Do not turn on the power of the computer before completing the entire installation process.

## Setting the Jumpers

Set the jumpers on the rear of the drive in accordance with the configuration of your computer system.

The illustration below shows the jumpers set to the “MASTER” position, this is the default set by the factory.



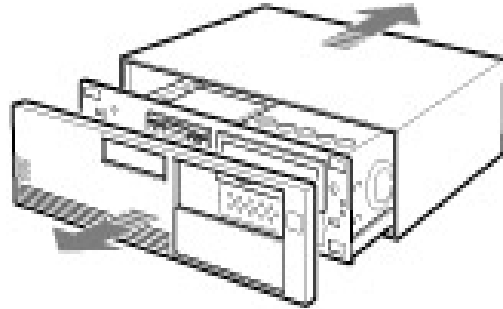
**Your computer should have a PRIMARY IDE bus and a SECONDARY IDE bus. Each bus can have one MASTER and one SLAVE device connected to it. Follow the configuration guidelines below for optimum performance and reliability.**

- Set the CRX-1611 as the MASTER device.
- The CRX-1611 can be connected to either the PRIMARY or SECONDARY bus, however if you have an IDE Hard disk on your computer the hard disk should be set as the MASTER device on the PRIMARY bus. Hence the CRX-1611 must be set as the PRIMARY device on the SECONDARY bus.
- Do not have a CD-ROM reader and a CD writer on the same IDE bus (ie: both on the SECONDARY bus). This will cause problems if copying from CD to CD.

Some personal computers may use CSEL in place of the MASTER/SLAVE selection. In this case, remove the existing jumper from MASTER or SLAVE, and set it on CSEL. When the CSEL is set high, the drive is designated as Drive 1. Consult your PC manufacturer, IDE Card manufacturer or dealer for further details.

## Opening the Computer

Refer to your computer's user manual for instructions on how to open the computer.



## Mounting the Drive

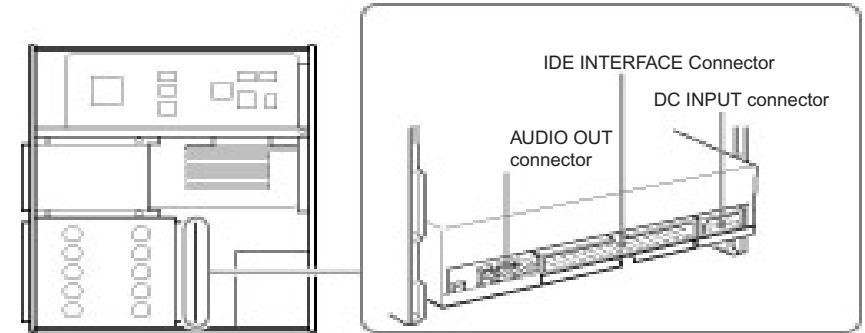
Do not mount the drive at an angle, it is only designed to be operated horizontally or vertically.

Some computer chassis require mounting rails on each side of the drive when installing new drives. If your system requires these rails you should contact your computer supplier.

## Connecting the Drive

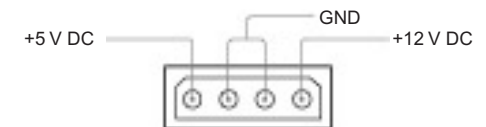
The drive should be connected to the computer with the following connectors:

- DC INPUT connector.
- AUDIO OUT connector (*if you plan to connect audio equipment*).
- IDE INTERFACE connector.

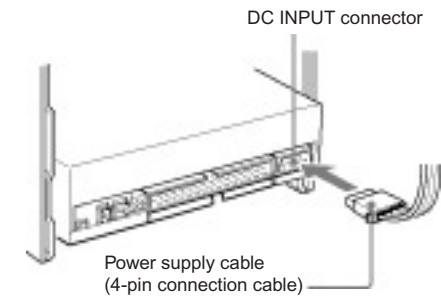


### ■ DC INPUT connector

The pin assignment for the DC connector is as follows.



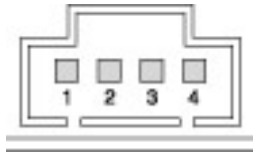
After matching the beveled edges, insert the plug of the power supply cable to the DC INPUT connector on the rear of the drive and push it firmly in place.





## ■ Analogue AUDIO OUT connector

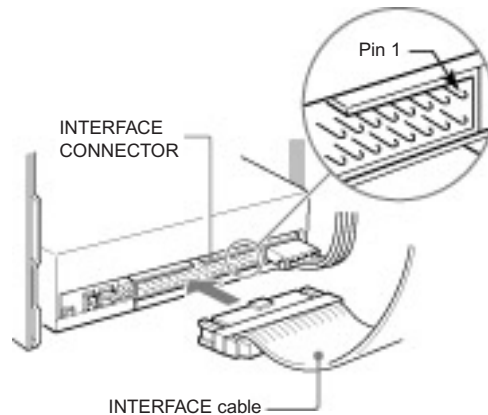
The pin assignment for the audio out connector is as follows:



pin	Audio Signal
1	R signal
2	ground
3	ground
4	L signal

## ■ IDE INTERFACE connector

- 1 Firmly insert one end of the interface cable into the INTERFACE CONNECTOR.

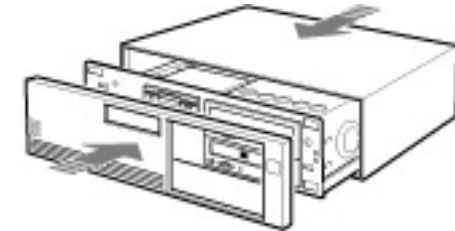


- 2 Attach the other end of the cable to the PRIMARY or SECONDARY IDE interface connectors on the computers main-board.

*Refer to your computers user manual for more information on where these connectors will be located.*

## Closing the Computer

Refer to your computers user manual for instructions on how to close the computer.



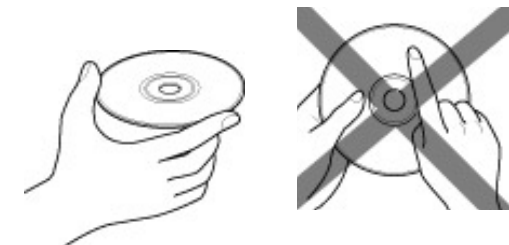
## Using Discs

### Storing Discs

- Do not store the disc in a location subject to:
  - high humidity
  - high temperature
  - excessive dust
  - direct sunlight

### Care of Discs

- Hold the disc by its edge. Do not touch the surface.
- Data cannot be recorded if the recording surface is contaminated.



# Installing the Software

## ***To use the drive as a CD-Rom Reader.***

Windows 95, 98, NT 4.0, Me, 2000 systems or a Macintosh (with a IDE interface) should detect the drive at start up and the appropriate ATAPI drivers be installed automatically to read discs.

If you wish to use the drive with MS-DOS you will require the MSCDEX extension (*available from Microsoft*) and Sony's ATAPI device driver available from Sony Australia's Web Site:

<http://www.sony.com.au/support/itp>

## ***To use the drive as a CD Writer.***

CD Authoring software will be required. There are many varieties, all have different features. Please be sure that the version of software you are using is compatible with the CRX-1611. This can be checked on the software manufacturer's web site, or for a list of compatible software refer to Sony Australia's web site:

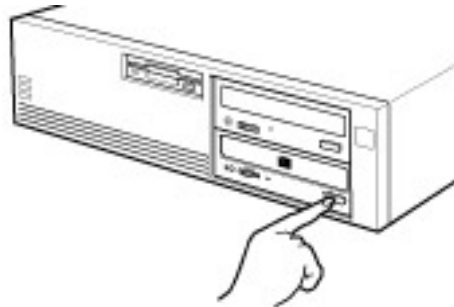
<http://www.sony.com.au/support/itp>

# Operating the Drive

This section describes how to start the drive and eject a disc.

## Starting the Drive

- 1 Turn on the power of your computer.
- 2 Press the eject button.  
The tray comes out automatically.

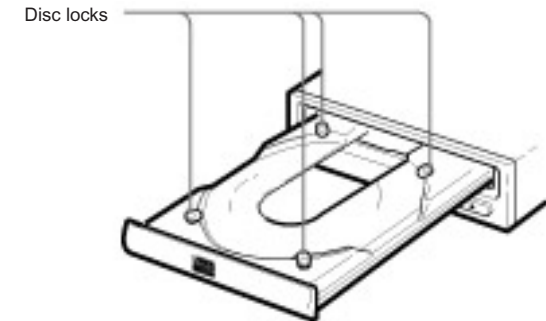


- 3 Place a disc in the tray with its label side up.



### Note:

When the drive is set up in vertical position, use the disc locks to prevent your disc from falling. See “How to Use the Disc Locks” on page 21 for details.



- 4 Gently push the tray or press the eject button to close the tray. The drive will begin reading the Table of Contents (TOC) data when it accepts the disc. The busy indicator lights up in amber while the drive is reading the TOC. When the busy indicator lights out, the drive is ready to receive commands, and data may be retrieved from the disc. After loading the CD-R or CD-RW disc, it takes a moment for the drive to become ready while the Program Memory Area is read. For subsequent drive operations, follow the instructions provided with the CD authoring software you are using.

### Note:

The busy indicator stays lit in amber if:

- the disc is not properly placed on the loading tray
- a malfunction occurs.

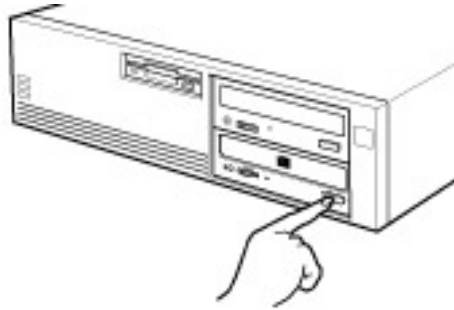
In either case, eject the disc and place it in the loading tray again making sure that it sits properly in the tray. If doing this does not solve the problem and the busy indicator still remains lit in amber, consult your dealer or qualified service personnel.

The busy indicator also lights amber during audio play. However, this is not a malfunction.

**Caution:** Do not forcibly close the disc drawer. Applying excessive force may damage the loading mechanism. The tray’s mechanism is designed to operate with a “feather touch”.

## Ejecting the Disc

To eject the disc, press the eject button on the front panel. The tray comes out automatically.



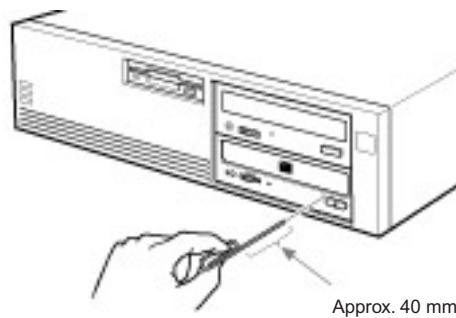
### Note:

The eject button does not work if it is disabled by the software you are using.

## ■ Opening the tray manually in an emergency

You can open the tray manually when it fails to come out by means of the eject button or software commands. To do this, follow the procedure below:

- 1 Turn off the power of your computer.
- 2 Insert a pointed object, such as a paper clip, into the emergency eject hole and push.



After removing the disc from the drive unit, consult your dealer or qualified service personnel.

## How to Use the Disc Locks

The disc tray has four disc locks that prevent the disc from falling when the drive is set up in vertical position.

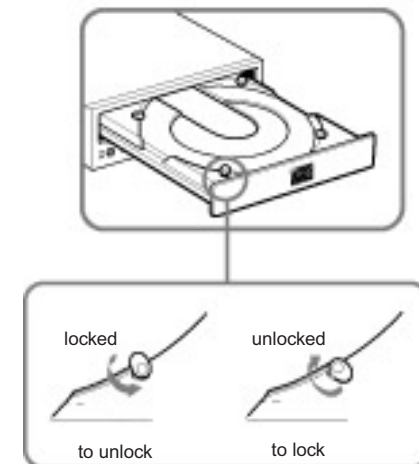


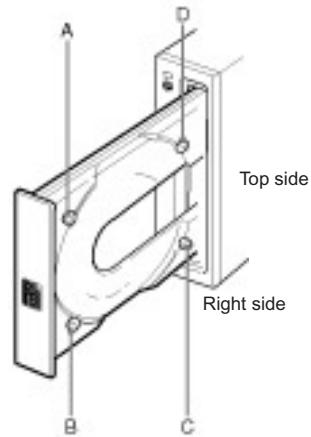
### Note:

When the drive is used in horizontal position, you do not need to lock the disc.

## ■ Locking and Unlocking

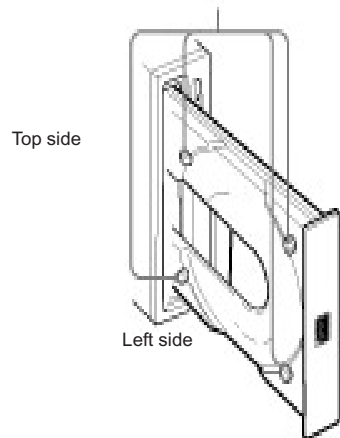
All of the four locks are set in the unlocked position (facing outward) when the drive is shipped from the factory. To set the lock in the locked position, turn it with your fingers until you hear a click so that it faces inward.





**When the drive's left side is down**

To facilitate disc handling, set the disc locks A, C and D into the locked position, and leave the disc lock B in the unlocked position.



# Specifications

■ **General**

<b>Host interface</b>	ATAPI compliant E-IDE (MMC2 compliant)
<b>Read Function</b>	This drive conforms to the "Multiread" specification.
Acceptable discs:	CD-ROM data ( <i>mode-1</i> ) CD-ROM XA ( <i>mode 2, form 1 &amp; 2</i> ) CD-Digital Audio CD-I ( <i>mode 2, form 1 &amp; 2</i> ) CD-I Ready Photo CD Video CD CD-EXTRA CD-TEXT CD-R CD-RW discs
<b>Write Function</b>	
Applied Format:	CD-ROM ( <i>Mode-1</i> ) CD-ROM XA ( <i>mode 2, form 1 &amp; 2</i> ) CD-Digital Audio CD-I ( <i>mode 2, form 1 &amp; 2</i> ) Video CD CD-EXTRA CD-TEXT
Writing Method:	Disc at once Session at once Track at once Variable packet Fixed packet writing ( <i>Max packet size : 1200Kbytes</i> ) Track Reservation
<b>Cache memory</b>	2 Mbytes (Drive has Buffer Under-run prevention)
<b>Read speed</b>	
Read (CD-Rom/CD-R):	4-10X, 6-15X, 8-20X, 13-32X, 16-40X (CAV)
Read (CD-RW):	4-10X, 6-15X, 8-20X (CAV)
DAE:	16-32X (P-CAV)
<b>Write speed</b>	
CD-R:	4X, 8X, 16X
CD-RW:	4X, 8X, 10X

## ■ Drive performance

### Data transfer rate

Sustained rate: 2700 to 6200 Kbytes/s  
(16 to 40X CAV)

Max Data Transfer mode: 16.6 MB/s (ATA PIO Mode 4)  
16.6 MB/s (ATA DMA Mode 2)

### Access time

Random stroke: 105 ms

## ■ Reliability

Read error rate (includes retry, normal disc)

ECC On (mode 1): 1 Block /  $10^{12}$  bits

ECC Off (mode 1&2): 1 Block /  $10^9$  bits

MTBF: 70,000 POH @ 25% duty cycle in room temperature

## ■ Audio

Output level

Line out: 0.7 +/- 0.2 Vrms at 47k  $\Omega$ , 1KHz, 0dB

Head phone: 0.5 +/- 0.2 Vrms at 33  $\Omega$ , 1KHz, 0dB

Digital Output: 5.0 Vp-p SPDIF standard

## ■ Environmental conditions

Temperature and humidity

Operating: +5 °C to +45 °C  
(no condensation)

Transportation: -35 °C to +60 °C  
(10 % to 80 % humidity)

## ■ Dimensions and weight

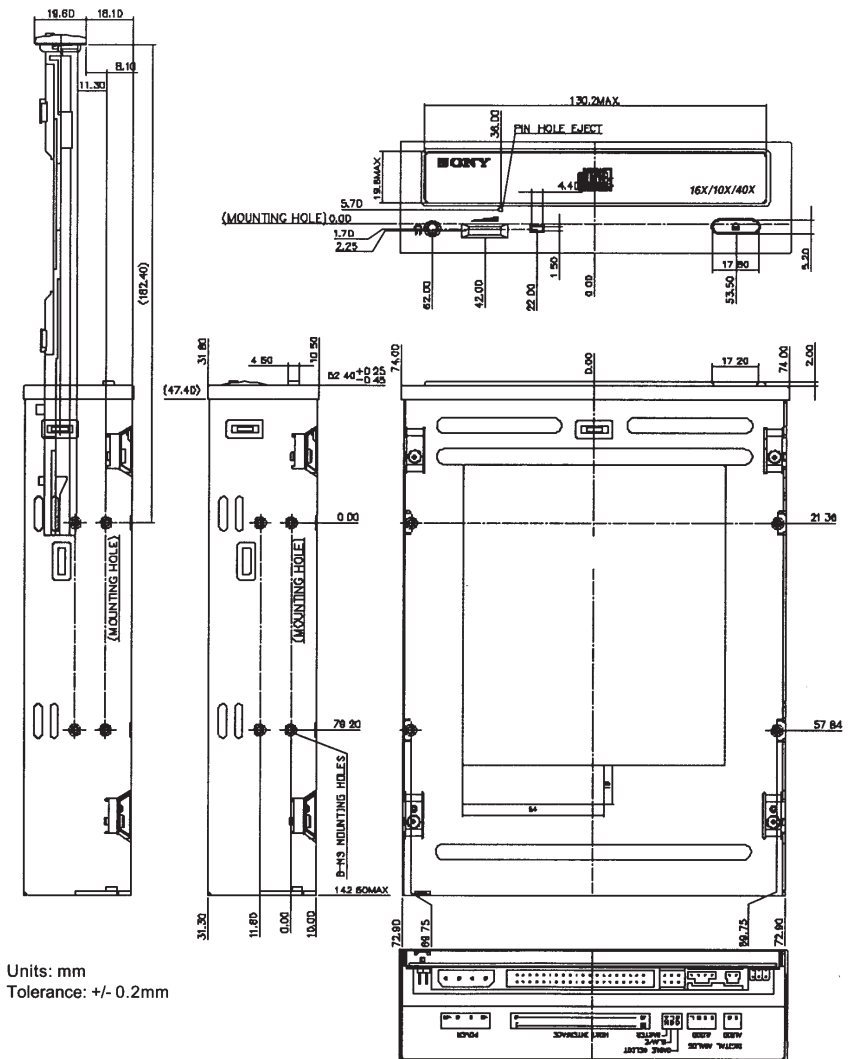
Dimensions: 145.8 x 41.3 x 190 mm +/- 0.5mm  
(w / h / d)

Mass: 1 kg

## ■ Power requirement

Voltage: +5 V  $\pm$  5 % DC and +12V DC  $\pm$  10 %

## ■ Dimension diagram



### Important:

Screws must not extend more than 6.0mm into the side panels or the bottom plate.

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# Technical Support

If you experience any difficulty with your CRX1600LEK i.LINK drive, please follow the troubleshooting suggestions in this manual and the software manuals. If you continue to experience problems, please visit the appropriate support web site as listed below:

**CD Writer issues**

[www.sony.com.au/support/itp](http://www.sony.com.au/support/itp)

**Software issues**

[Your software manufacturers web site](#)

or alternatively call the Sony Technical Support Centre on:

**1300 13 SONY (7669)**

Please have your model number, serial number, date of purchase and sales receipt available when you call Technical Support.  
90 days free support is provided from the date of your first call.

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# Recommended Sony Media

**CD-R Media**

74 Minute	(650MB) -	CDQ74N1
80 Minute	(700MB) -	CDQ80N1

**CD-RW Media**

4x max (Adaptec Direct CD format)	-	CDRW650DF
High Speed (Adaptec Direct CD format)	-	CDRW650HW

For more information on where to buy Sony recordable CD media please visit our web site at:

[www.sony.com.au](http://www.sony.com.au)

or call our Customer Information Centre on:

**1300 13 SONY (7669)**