

Roland VS 2480 **CD**

to

Roland VS 2480 **DVD**

conversion project



DISCLAIMER

It is strongly recommended that you do not attempt to perform the modifications described in this document to your Roland VS 2480CD recorder. Attempting this modification will **void your warranty** and may result in **personal injury** and **damage** to your VS 2480CD unit. In no event will the author be held responsible for any direct or indirect damages or injuries. This modification is **not sanctioned by Roland**. You are fully responsible for your actions and safety. By no means will you hold anyone legally or morally responsible for any alteration you or anyone else performs on your property. Only those who possess advanced skills should attempt this or any other modification to their property.

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Thanks to Midisync from www.vsplanet.com for being the first to do this modification.

If you have any comments regarding this document such as corrections or suggestions, please contact me through www.vsplanet.com, nickname 'Arjan van Gog'.

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INTRODUCTION

The original V-Studio 2480 or VS2480 from Roland Corporation (sometimes referred to as VS2480HD to distinguish it from later models) did not have a CD-ROM drive built-in, although an external SCSI CD writer could be attached to the external SCSI port. The hard drive was located in a user-removable caddy on the front.

The next version of this unit, the VS2480CD sported a notebook type slimline CD writer unit that could be used the same way as an external CD writer. It was also located at the same place where the hard drive was located. The harddrive on this unit cannot be easily exchanged. The CD writer is manufactured by Matshita (also known as Panasonic) and is a 4x write speed model.

The latest offering from Roland, the VS2480DVD, features a DVD drive which replaces the CD drive. In this case Roland used the UJ-811 drive, again from Matshita. Fortunately it turns out that apart from this new drive and a new OS (firmware) version to support this DVD drive there is absolutely no difference between the 2480CD and 2480DVD. It is therefore possible to modify a 2480CD to become a 2480DVD by simply replacing the original CD writer with an appropriate DVD writer.

Obviously the original UJ-811 drive used by Roland could be used, however this drive is no longer manufactured and therefore very difficult to obtain. Luckily the UJ-825 drive was found to be compatible too and it is likely that other drives from the UJ-8... series can be used as well. Whereas the UJ-811 drive is tray-loading, the UJ-825 is slot-loading. Also the UJ-825 can support DVD+R however because the 2480 OS only supports DVD-R writing this is of no benefit at this moment.

Full specs for the UJ-811, UJ-815, UJ-825 and UJ-830 drives can be found at the end of this document.

WHAT YOU NEED

You need two things to convert your 2480CD to a 2480DVD:

- VS2480CD unit (obviously)
- UJ-8... slimline DVD writer with 'MASTER' firmware (see sidebar and 'Finding a suitable drive')

The modification as described here cannot be done to a 2480HD because it lacks a certain interface board and mounting hardware. To convert your 2480CD to a 2480DVD like machine these are the steps to take:

- Open up your 2480CD by removing the bottom plate
- Remove the HD/CD bay
- Remove the CD writer from the CD bay
- Place the UJ-8... writer in the CD bay
- Put the HD/CD bay back into your 2480
- Put the bottom plate back onto your 2480
- See if it works!

On the next pages you will find clear step-by-step instructions with clear pictures that will guide you through the process.

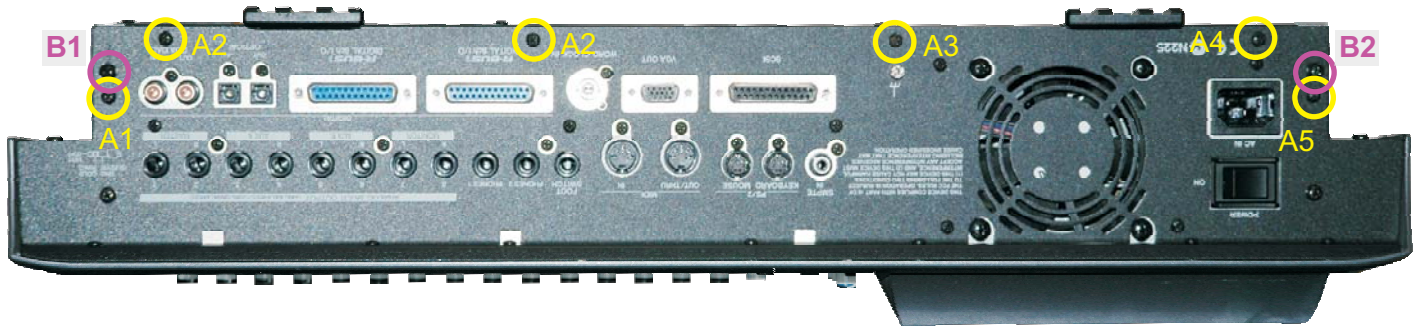
The UJ-8... series slimline drives, like many other slimline devices, do not have DIP switches to select between MASTER/SLAVE/CS operation. Instead a specific firmware is required for each mode of operation. MASTER firmware is most common but if in doubt verify with your supplier that the drive you are buying is in fact set to operate as MASTER. Slimline (notebook) drives can also have special firmware versions for different notebook types (DELL, Apple) which may not be compatible with your 2480. Make sure your drive has the regular generic firmware for that drive rather than a special version. Some suppliers offer a choice of the type of firmware your drive comes with.

TEARING APART YOUR 2480CD

First of all, let me remind you that this modification can only be done to a 2480CD. The original VS 2480 or 2480HD as it's sometimes referred to cannot be modified using this procedure because it lacks a certain interface card and some mounting hardware.

First of all, remove **all** connectors from your 2480. To open up your 2480, place it upside down with some thick books supporting it by its four corners. You do not want the angled LCD display to take the pressure so make sure it does not touch the bench or desk. It's probably easiest to have it oriented with the CD front facing you towards the edge of your bench but make sure there's enough space between the backplate and any wall to allow for removal of the screws from the backplate.

Remove all screws from the as backplate as indicated in the picture below. There are two different types screws at the back that need to be removed, we will refer to these as type **A** (yellow) and **B** (purple). Make sure to keep all types in different and clearly labeled jars.



Static electricity can damage sensitive electronic components. To reduce the risk of damaging your 2480 or any components you should discharge yourself by touching the ground from an outlet. Make sure the outlets ground is actually connected! It may also be advisable to keep the 2480's power cord plugged in during the disassembly process, as long as you make absolutely sure that you do not switch it on by accident.


Now proceed with removing all screws from the bottom plate as indicated in the picture on the next page. Again make sure to put each screw in the appropriate labeled jar to avoid confusion upon assembling the unit back together again.

Before taking your new DVD drive out of its protective conducting foil, cut the foil open and touch the inside of the foil (with the drive still in it) while at the same time touching the outlet ground again. If the 2480 is not connected to a grounded outlet touch some metal part of the 2480 as well (at the same time). This ensures that you, the 2480 and the new drive are all at the same potential which reduces the risk of damage caused by static electricity.



A  14x
Bottom plate
2x
Outer rim

D  2x
CD front

B  4x
Bottom plate CD bay area

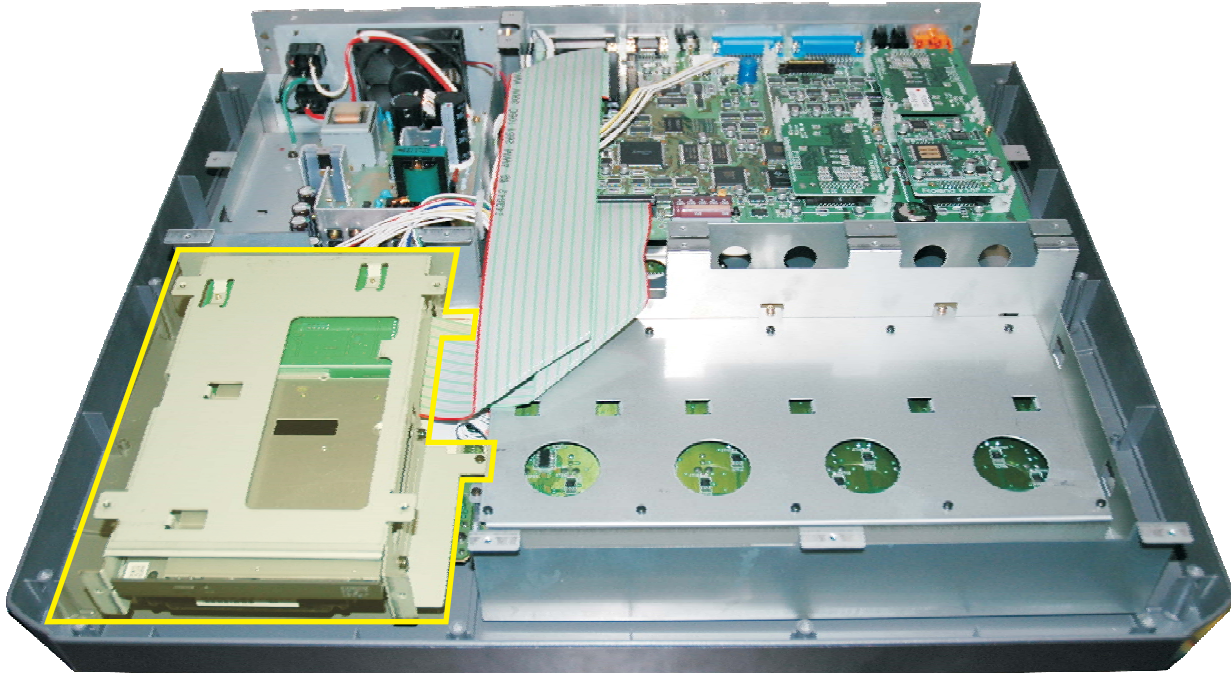
E  1x
With special locking

C  10x
Self-tapping
Outer rim

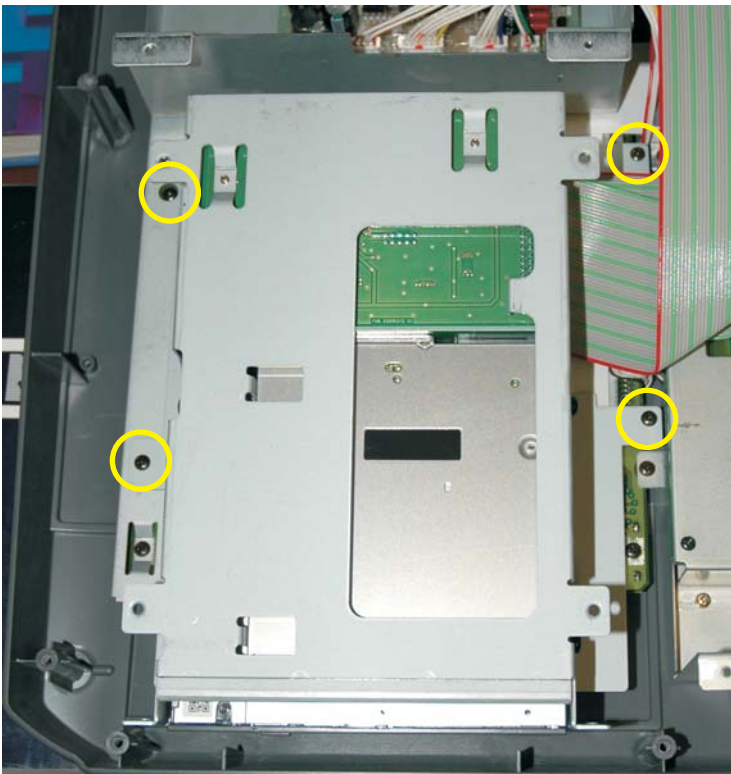
NOTE: This particular 2480CD unit had already been opened once by Roland to perform the input distortion fix. It is possible that when it was assembled back together it was done slightly different from an original factory assembled unit. You should therefore check if the screws from your unit match the ones shown here!

THE INSIDE OF YOUR 2480CD

After removing all screws you should now be able to take off the bottom plate of your 2480CD and take a look inside. The HD/CD bay is located in the bottom left (highlighted in yellow below):



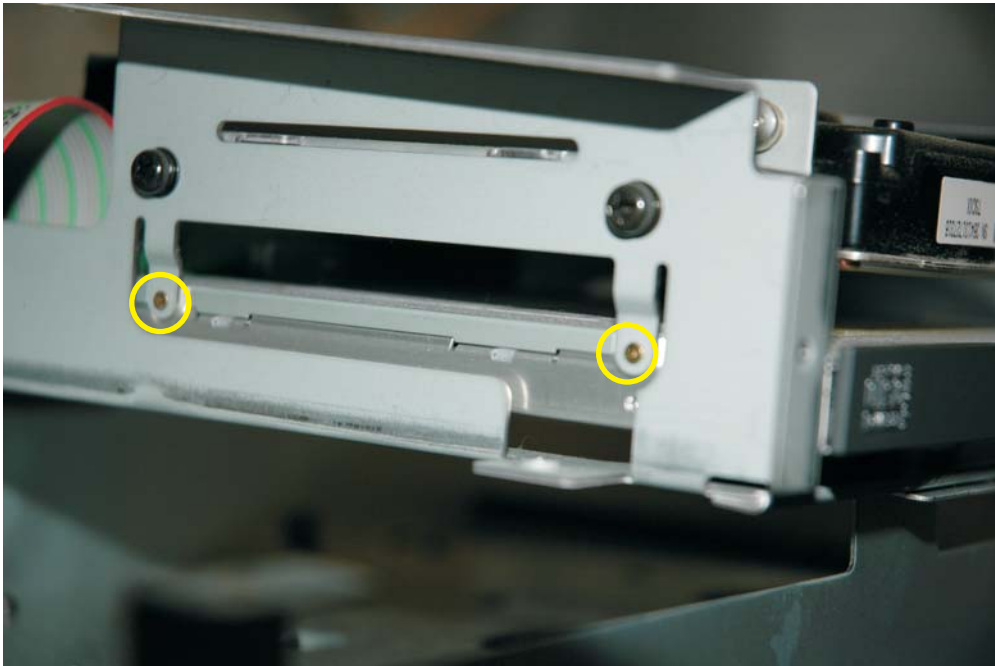
To take out the drive bay remove the four screws as indicated below:



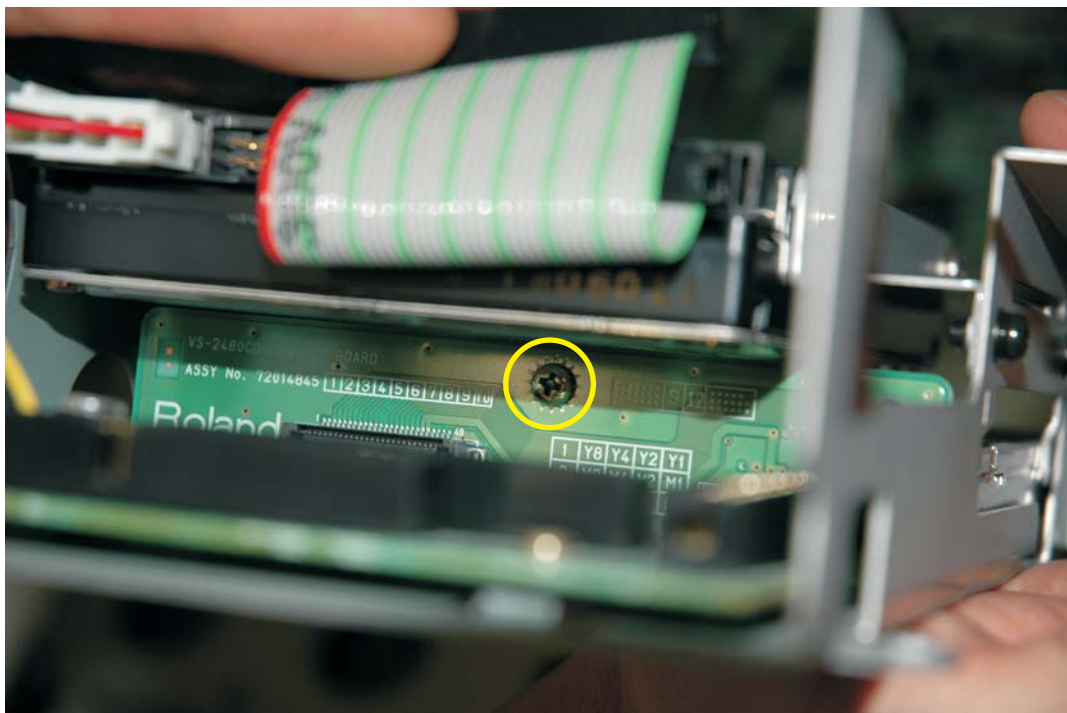
0618: drive bay?

Carefully take out the drive bay, turn it upside down and remove the two large 50 pin connectors; this will give you more freedom to manouver.

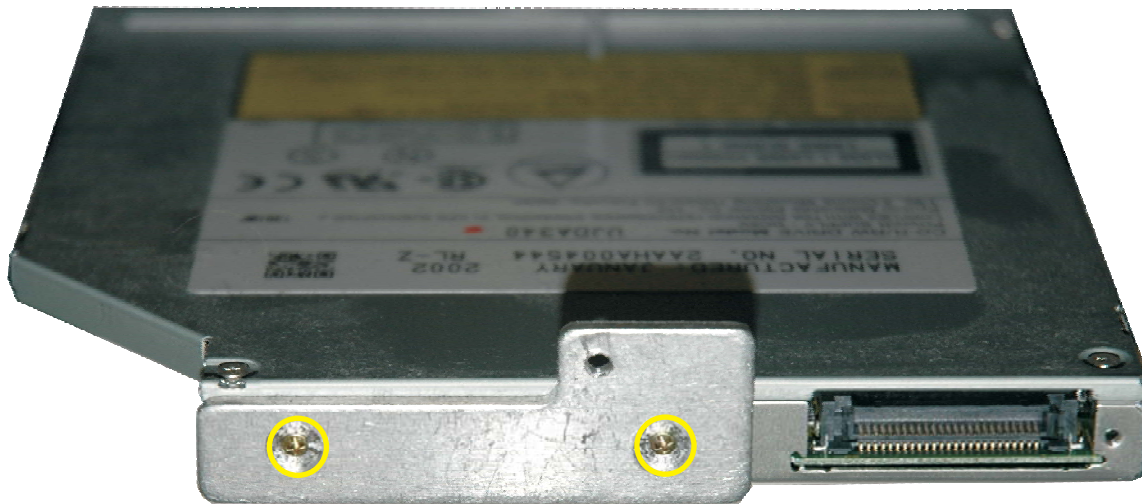
There are 2 very tiny copper colored screws on each side of the bay that hold the CD-R drive in position. On one side they are directly visible and accessible, on the other side they are in a recessed location and you will need to stick your screwdriver into the drive bay to unscrew these two.



Now also remove the very short 40 pin IDE connector from the PCB as shown below and remove the screw that fixates the small vertical PCB to the back of the CD-R drive as shown below:



Carefully slide the CD-R drive out of the bay. It's not very smooth and there are some obstacles but don't force anything and take your time. Hold the small vertical PCB so that it doesn't come out with the drive, it is still attached to the drive by a mini-IDE connector. After you have taken out the drive compare it to your replacement DVD writer to verify that it has the same shape and size and will fit. Now take off the metal plate affixed to the back of the CD-R drive by removing the two screws shown below:



RE-ASSEMBLING YOUR 2480

Attach the metal plate to your replacement DVD drive the same way. Now slide the DVD drive back into the drive bay. Again this is not very smooth, take care to slide it in at the proper height. When it's almost all the way in you will again need to hold the small vertical PCB and connect it to the mini-IDE connector of your new drive. Make sure the connector is properly seated and slide in the drive the rest of the way. Use the screws to fix the PCB to the drive again.

Reconnect the very short IDE connector from the hard drive to the PCB (see bottom picture on previous page). Also reconnect the two long 50-pin SCSI connector coming from the main PCB to the drive bay PCB. Place the drive bay back onto the 2480 chassis and use the 4 screws to fix it. If you now look at the front of the DVD drive it may appear not to line up with the 2480's exterior. Don't worry, this will be ok as soon as you screw the bay back onto the 2480's bottom plate.

When the drive bay is seated carefully put the 2480 bottom plate back on and put the screws back in. Be careful with self-tapping screws (see sidebar). Before putting in each and every screw you may first want to test your 2480 and the new DVD drive to ensure that all internal connections are ok.

Self-tapping screws

Take care when re-applying screw types A and in particular C. These are so-called self-tapping screws that are not really meant to be used more than once. Self-tapping screws have notches in the first few threads that can cut female threads in a hollow cylinder. When inserting these screws first rotate your screw driver counter-clockwise until you hear or feel the screws thread fall into the existing groove. If you do not this you may end up tapping a new groove into the metal or plastic which weakens the connection considerably.

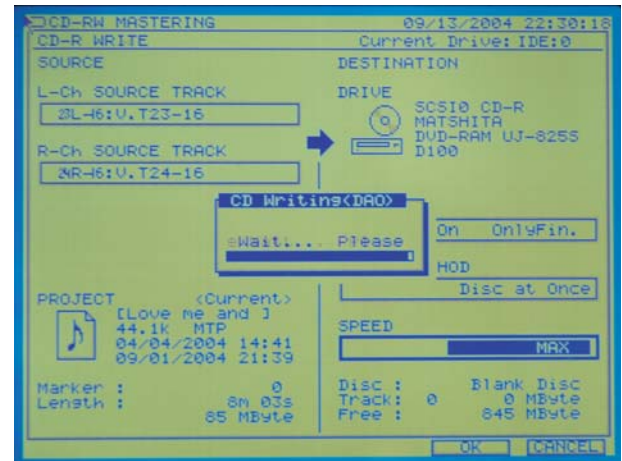
TESTING YOUR 2480DVD

Turn over your 2480 to its normal upright position, plug in the mains power, switch it on check if it will recognize all SCSI and IDE devices. After it has finished powering up load a project and use one of the CD-RW functions for example PROJECT BACKUP or CD WRITE to see if your 2480 can access and use its new internal DVD drive. The drive should now be identified by the 2480 as

**SCSI 0 CD-R
MATSHITA
DVD-RAM UJ-825S
D100**

Pop in a DVD-R disc and start backing up. Remember the following:

- One backup is no backup. Make sure that important stuff is always backed up on two disks and store these in different locations
- Never ever use rewritable CD-RW or DVD-RW media for backups. They are unreliable. Only use write-once media for backups.
- For importing/exporting .WAV files the use of rewritable media is a good idea since it's only meant as a temporary means
- You can still use CD-R media to backup small projects that fit on a single disk. They are cheaper and can be just as reliable (if not more) as DVD-R.
- Have fun with your 2480DVD!



FINDING A SUITABLE DRIVE

Slimline DVD drives are not a regular retail item because they are mainly used by OEMs (Original Equipment Manufacturers) in special devices such as notebooks. The drive I used was the UJ-825 by Matshita. Some sources where you may find this or other UJ-8... series drives include:

<http://www.newegg.com> (Model#: UJ-825-B, Item#: N82E16827133004)
<http://www.tks-computer.de/Sonderposten/sonderposten.html>

You may be able to find more sources by using Google to search for the
My personal guess is that most if not all UJ-8... series slimline DVD writers will work.

On the next 4 pages you will find the original spec sheets for a number of UJ-8... drives. These were taken from the following internet pages:

<http://www.panasonic.com/industrial/computer/storage/multi/images/pdf/UJ-811.pdf>
<http://www.panasonic.com/industrial/computer/storage/multi/images/pdf/UJ-815.pdf>
<http://www.panasonic.com/industrial/computer/storage/multi/images/pdf/UJ-825.pdf>
<http://www.panasonic.com/industrial/computer/storage/multi/images/pdf/UJ-830.pdf>

Slim DVD MULTI Drive UJ-811

Internal Type



Model No. UJ-811

■ Features

- 2X DVD-RAM Writing
- 2X DVD-R Writing
- 1X DVD-RW Writing
- 16X CD-R Writing
- 8X CD-RW Writing
- 8X DVD-ROM Reading
- 24X CD-ROM Reading
- Buffer Under Run Protection

■ Specifications

Interface		IDE/ATAPI
Power Requirement	Voltage	DC 5V±5%
Environmental Temperature	Operating	5~50°C
	Storage	-20~60°C
Relative Humidity	Operating	10~80%RH (No condensation)
	Storage	5~90%RH (No condensation)
Dimensions		128(W) x 129(D) x 12.7(H) mm
Weight		210g
Applicable Disk and Disk Format		DVD-ROM, DVD-Video, DVD-R, DVD-RW, DVD-RAM, CD-DA, CD-Extra, CD-ROM(Mode1, Mode2 Form1), CD-ROM XA(Mode2 Form2), Photo CD(Single & Multi session), Video CD, CD-Text

● Specifications are subject to change without notice.

For further information:
Panasonic Industrial Co.
1600 McCandless Drive
Milpitas, CA 95035
Tel. 408-945-5600
Fax: 408-262-4214
E-mail: berzind@panasonic.com

Panasonic

Kyushu Matsushita Electric Co., Ltd.
Devices and Components Division

Printed in Japan Aug. 2002

Panasonic

Slot Loading DVD MULTI Drive

OEM

UJ-815-B



■ Features

2X Speed DVD-RAM Writing
2X Speed DVD-R Writing
1X Speed DVD-RW Writing
16X Speed CD-R Writing
8X Speed CD-RW Writing
24X Speed CD-ROM Reading
8X Speed DVD-ROM Reading
Buffer Under Run Protection
DVD Multi Read/Write Support

■ Specifications

Data Capacity		4.7GB
Interface		IDE/ATAPI
Buffer Memory		2MBytes
Error Rate	Soft Read Error	Less than 10^{-9}
	Hard Read Error	Less than 10^{-12}
Power Requirements	Voltage	DC+5V \pm 5%
Temperature (Center of Top Cover)	Operating	5 \sim 50 °C
	Storage	-30 \sim 65 °C
Relative Humidity	Operating	10 \sim 80%(No condensation)
	Storage	5 \sim 90%(No condensation)
Mounting Orientation		Horizontal or Vertical
Dimensions		128.0(W) \times 12.7(H) \times 129.0(D)mm (Depth dimension without Bezel)

●Specifications are subject to change without notice.

For further information;

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Kawauchi Onsen-gun, Ehime-ken, 791-0395 Japan

TEL+81-(89)-966-2111 FAX+81-(89)-966-2118

Slot Loading DVD MULTI Drive

UJ-825-B



■ Features

2X Speed DVD-RAM Writing
4X Speed DVD-R Writing
2X Speed DVD-RW Writing
16X Speed CD-R Writing
8X Speed CD-RW Writing
2.4X Speed +R Writing
2.4X Speed +RW Writing
24X Speed CD-ROM Reading
8X Speed DVD-ROM Reading
Buffer Under Run Protection

■ Specifications

Data Capacity		4.7GB
Interface		IDE/ATAPI
Buffer Memory		2MBytes
Error Rate	Soft Read Error	Less than 10^{-9}
	Hard Read Error	Less than 10^{-12}
Power Requirements	Voltage	DC+5V±5%
Temperature (Center of Top Cover)	Operating	5 ~ 50 °C
	Storage	-30 ~ 65 °C
Relative Humidity	Operating	10 ~ 80%(No condensation)
	Storage	5 ~ 90%(No condensation)
Mounting Orientation		Horizontal or Vertical
Dimensions		128.0(W)×12.7(H)×129.0(D)mm (Depth dimension includes Bezel)

• Specifications are subject to change without notice.

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San Jose, CA 95110
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Fax: 408-436-8495
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TEL+81-(89)-966-2111 FAX+81-(89)-966-2118

Internal Type

OEM

12.7mm Height **Super MULTI Drive**



Model No. UJ-830

■ Features

- 12.7mm height
- 3X DVD-RAM Writing
- 8X DVD-R Writing
- 4X DVD-RW Writing
- 8X +R Writing
- 4X +RW Writing
- 24X CD-R Writing
- 10X CD-RW Writing
- 8X DVD-ROM Reading
- 24X CD-ROM Reading
- ATAPI Interface

■ Specifications

Interface		IDE/ATAPI
Power Requirement	Voltage	DC 5V±5%
Environmental Temperature	Operating	5 ~ 45°C
	Storage	-30 ~ 65°C
Relative Humidity	Operating	10 ~ 80%RH (No condensation)
	Storage	5 ~ 90%RH (No condensation)
Dimensions		128(W) x 129(D) x 12.7(H) mm
Weight		200g
Applicable Disk and Disk Format		DVD-ROM, DVD-Video, DVD-RAM, DVD-R DVD-RW, +R, +RW, CD-R, CD-RW CD-DA, CD-ROM (Mode1, Mode2 Form1), CD-ROM XA (Mode2 Form2), Photo CD (Single & Multi session), Video CD, CD-Text, CD-Extra

- Specifications are subject to change without notice.

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