

## DOLBY DIGITAL/DTS PREAMPLIFIER-PROCESSOR & 5-CHANNEL AMPLIFIER

# Rotel RTC-965 & RB-985 Mk.II THX

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### ROTEL RTC-965 PREAMPLIFIER-PROCESSOR

I hate to sound like the porker who built his house of bricks, but before you buy the Rotel RTC-965 or any other preamp-processor, you'd better be planning for your home-theater future—things are moving that fast.

First, you'd better consider your move to DTV or HDTV. If that's coming soon, you should consider a preamp-processor with component video switching, something the

Rotel lacks. After all, you're not going to be wanting to pull three plugs out of your HD receiver and push them into your DVD player every time you want to watch a movie, and vice-versa when going the other way around.

On the other hand, if your move to HD is still a few years off, you'll probably be happy with the Rotel. Given this suave-sounding model's ridiculously low price (\$899), there's no need to be concerned about future obso-

lescence—you'll be getting your money's worth. In fact, the way I see it, why spend big bucks now on a preamp-processor with all the features you'll want and need in a few years, when you can have the Rotel for under a grand now and put the difference into the bank or the stock market? [A replacement for this model is planned for late this year, but as of this printing, the

### SPECIFICATIONS

**RTC-965** A/V preamplifier-processor with AM/FM tuner, Dolby Pro Logic, Dolby Digital, and DTS

**Video inputs:** 5 S-video/composite, 2 S-video/composite video outputs (record, TV monitor)

**Audio inputs:** MM phono, CD, 2 audio tape loops, 5.1-channel discrete

**Digital inputs:** 4 (2 coaxial, 2 TosLink)

**Dimensions:** 17 $\frac{3}{4}$ " x 6 $\frac{1}{4}$ " x 12"  
(W x H x D)

**Weight:** 15.2 lbs.

**Warranty:** 5 years parts & labor

**Price:** \$899

**RB-985 Mk.II THX** 5-channel power amplifier

**Power output:** 100W<sub>pc</sub> @ 8

**THD:** 0.03%, 20Hz–20kHz, 1W

**Signal/noise:** 11.5dB, IHF "A"-weighted

**Frequency response:** 10Hz–80kHz, ±0.5dB

**Damping factor:** 180

**Input sensitivity:** 27kΩ/1.0V

**Dimensions:** 17 $\frac{3}{4}$ " x 5 $\frac{1}{2}$ " x 15 $\frac{1}{8}$ "  
(W x H x D)

**Weight:** 34.1 lbs.

**Price:** \$999

#### Manufacturer

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There is no need to be concerned about **future obsolescence**—you'll be getting your **money's worth**.

*RTC-965 remains in the Rotel line.—TJN*

The RTC-965 is, by today's standards, a "basic" preamp-processor. It gives you Dolby Digital, DTS, Pro Logic, AM/FM stereo with 30 presets, MM phono, multiple inputs of S-video and composite switching, and 5.1-channel direct throughput for future upgrades like DVD-Audio. The truth is, though, if you're like the bulk of videophiles out there, licking their chops for HDTV and progressive-scan DVD, your future upgrades will require a great deal more than a 5.1-channel throughput. But why dwell on the future when, in the present, you can have the RTC-965's performance and flexibility for the cost of some audiophile cable?

This receiver-sized preamp is neatly laid

out front and rear; but with no illumination and a dark-on-dark front-panel scheme, you'll be switching on a light or using a flashlight until you learn the layout. The face is dominated by 10 source pushbuttons, including a generous five A/V switchers. Below that are series of smaller pushbuttons for switching modes (Pro Logic, 3-channel stereo, DSP, stereo), dynamic-range compression for late-night viewing, a Menu button for activating the onscreen programming, a Speaker Mode for controlling bass-management functions, 5.1-Channel Input for the Throughput feature, Video Labels (which lets you customize the names of your video inputs), and Video 1 Rec, which selects which video source's output reaches

the inputs of the VCR connected to Video 1. This is an independent loop, meaning you can listen to another input while recording.

Below that row are three sets of  $\pm$  buttons for setting the subwoofer, surround, and center-channel levels. While most of your adjusting will be done using the onscreen menu, you can't access the onscreen display (OSD) while watching your monitor's built-in tuner, so having convenient, easy-to-use front-panel controls is a good feature. A large LED display above the rows of buttons monitors surround mode, tuner choices, and other data. To its right are the tuner presets, tuning modes and controls, and volume. Below are the bass, treble, and balance controls.

Most of the time, though, you'll be controlling the RTC-965 using the RR-39 learning remote, a "generic" model used by many manufacturers, including Sherwood Newcastle and B&K. This is one way Rotel, like Sherwood, can offer a high level of performance and quality for such a reasonable price, but



the RR-39 is not the most convenient you'll find. While the controls can be bathed in cool blue light at the push of a button, the source buttons themselves are not labeled, so illumination doesn't help you identify which is which. The two rows of five source buttons each are identified by writing below each that, until you've memorized them, you'll need to find with a flashlight or lamp.

A particularly annoying feature of the remote is the proximity of the Mute control

to the tuner's Band button. While the instructions tell you the latter duplicates the front panel's AM/FM tuner band control, it does something much different if you accidentally press it. Usually, when you press Mute, you need to cut the sound quickly—as when your significant other is screaming at you over explosions. But if you hit Band instead of Mute—very easy to do!—the input source automatically switches to the tuner. And if you have no antenna connected to the tuner, you'll get an ungodly combination of very loud static and/or loud voices and music. That always makes the wifey happy when she's demanding your attention.

Also, while the Up and Down controls for the onscreen menu cursor are near the center of the remote, adjacent to the button that accesses the OSD in the first place, the Enter and Back buttons used in this process are somewhere else entirely. So the RR-39 is not a particularly pleasant remote to use until you get the hang of it, and even then, the best that can be said for it is that it's rugged, reasonably well laid out despite the few annoyances, and it can learn the codes for and operate up to eight other devices.

### Setup and Use

The RTC-965's uncluttered, well-marked rear-panel layout makes hookup easy. There are four digital source inputs: two coax, two TosLink, and five A/V (one of these is a tape loop), along with phono, CD, and two audio tape loops. There's no digital out for CD-R or MiniDisc recording. The left, right, center, surround, and subwoofer outs are thankfully in an open location on the panel, next to the AM/FM antenna terminals—something not every manufacturer provides. This makes connecting higher-quality cables (which often sport bulky RCA plugs) more convenient than on some pre-amp-processors and receivers.

Once you're all connected, the Rotel is easy to use and configure. If you've done this before, you'll have no trouble doing it with the Rotel. More important, those who've never configured an A/V processor before will also find it painless, both because of the cleanly designed and easy-to-use OSD and, for a change, a really well-edited, well-laid-out instruction booklet actually written in complete sentences! Congratulations, Rotel.

With any selected input, a digital source

## REVIEW SYSTEM

### Display

Toshiba TW40X81 projection TV  
Hughes/JVC DLA G10 Digital Graphics projector  
Deuce Pro Scaler  
Crystalimage 2.0 video scaler  
Da-Lite Da-Snap screen (92" diagonal)

### Sources

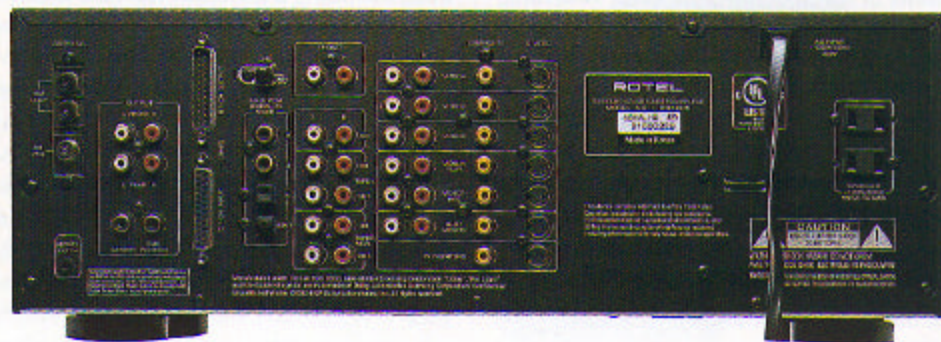
Pioneer DV-05 DVD player  
Pioneer CLD-D606 LD player  
Sharp TU DTV1000 digital tuner

### Cables

Digital: Wireworld Eclipse Gold, XLO Reference  
Interconnects: Straight Wire (processor to amp)  
Video: AudioQuest S-video, component  
Speaker: Sumiko OCOS (L/C/R, surrounds)

### Misc.

Audio Power Industries Power Wedge 116 line conditioner  
Terk Pi indoor powered FM antenna  
Terk AM Advantage AM-1000 indoor AM antenna





will take precedence over an analog one. The Input Source factory default is Auto; i.e., if you load a DTS 5.1-channel music disc or a DTS DVD into your player, it will automatically switch to DTS and play. Ditto a Dolby Digital DVD. The '965 does this with nary a digital hiccup or belch. (If you have an AC-3RF laserdisc player, you'll need an outboard RF demodulator.)

### Sweet Sound

Rotel is known as a sound-oriented company, and you'll understand why when you hear the RTC-965—a sweet preamp-processor with none of the metallic, edgy, thin, and sometimes grainy sound afflicting some budget and even some not-so-budget products. While I've heard somewhat more refined, more highly resolved sound from pre-pros costing well over twice the '965's asking price of \$899, the Rotel's sonic performance was impressive.

I used it to drive the Rotel RB-985 Mk.II amplifier and the B&K Reference 7250 (reviewed in July/August 2000). I was more than pleased with the sound I got from both combinations, and with the RTC-965's ability to allow each amplifier to reveal its own particular character.

Sometimes, using a budget preamp-processor with expensive, revealing loudspeakers can be a serious mismatch unfair to both products. But used in conjunction with the very revealing and very expensive Aerial Acoustics loudspeaker system (reviewed in our May 2000 issue), the RTC-965 sounded dynamic, authoritative, and harmonically rich. If it fell short in any area, it was in the ability to reveal inner detail on

some familiar material. No, the '965 did not have the Denon 5700 receiver's airy, detailed upper midrange, nor could it present focused, layered, 3-dimensional images with the same degree of clarity. But given the Denon's price premium over the Rotel (\$900 more than the combination of the RTC-965 and RB-985), these failings were more than made up for by the Rotel processor's velvety-rich overall balance and outstanding extension at the frequency extremes.

Most of the reasonably priced gear I've auditioned performs DTS, Dolby Digital, and Pro Logic decoding equally well—not

surprising, as all of them use either the same or equivalent off-the-shelf chipsets. The Rotel's performance was neither better nor worse than the others in this regard. Its FM tuner pulled in the usual suspects using a Terk Pi powered antenna, and the AM did as well with Terk's AM Advantage AM-1000.

### ROTEL RB-985 MK.II THX POWER AMPLIFIER

Rotel is one of those "multinational" companies that picks and chooses parts from all over the world while making some of its own, including toroidal transformers—the true heart of any amplifier. But how Rotel

## MEASUREMENTS

*Unless otherwise noted, these readings were taken on the left front channel.*

The Rotel RB-985 Mk.II's input impedance measured 35k $\Omega$ , the output impedance 0.052 $\Omega$ —both values should make for easy matching with other components. The gain was 28.7dB. The crosstalk from the left to the center channel measured -70dB across most of the frequency range, and actually improved at 20kHz, to -80dB. From the center to the left channel, the crosstalk measured -73dB up to 4kHz, decreasing to -68dB at 20kHz. These low values of crosstalk will not affect the amplifier's audible performance. The A-weighted S/N, relative to 1W into 8 $\Omega$ , measured 101dB (all dB levels rounded to the nearest dB).

The Rotel's frequency response was flat, down by only a trivial -0.1dB at 20Hz and 20kHz into 8 $\Omega$  (-0.16dB at 20kHz into 4 $\Omega$ ). The

amplifier's 1kHz and 10kHz squarewaves were about as good as we've seen from a modern amp, with fast risetimes and no overshoot or ringing. Total harmonic distortion (THD) plus noise at low power (1W into 8 $\Omega$  and 2W into 4 $\Omega$ ) was extremely low, never exceeding 0.014% at any audible frequency.

At clipping (1% THD+noise, 1kHz), the Rotel produced 1.58Wpc with two channels driven into 8 $\Omega$ , 259Wpc with two channels driven into 4 $\Omega$ . When I tested the amplifier into 2 $\Omega$ , its protection circuits tripped at just over 400W, one channel driven, so it was not possible to determine a precise clipping level with that load. In any event, Rotel doesn't recommend that this amp be used with speakers of less than 4 $\Omega$ . With five channels driven into 8 $\Omega$  at 1kHz or 20Hz, the Rotel generated 128Wpc. The power-line voltages for these measurements ranged from 116V to 119V—TJN

manages to sell the 100W×5 RB-985 Mk.II THX's high-current, low-noise, low-distortion performance and superb build and parts qualities for \$999 is a mystery to me.

I'm not complaining. I don't have a test bench, so I can't measure this amp's perfor-

cal goings-on (and sound effects) while maintaining its essentially rich yet detailed sonic character. This is one amplifier that didn't seem to jack up the distortion when asked to spew power.

I drove the front L/Rs full-range to check

attractive flavor. But given how most movie soundtracks are balanced, the RB-985 Mk.II tasted about right to me.

I predict overall exemplary measurements and conservative power ratings for this outstanding performer. Highly recom-



**Highly recommended**—and not just for those looking to **spend a grand**.

mance—I can only listen. What I heard was an amplifier with power, control, musicality, and an overall sonic balance that was rich without being ripe, detailed without having sharp edges.

The '985's sound was what I think Sherwood was aiming for with its AM-9080 amplifier, which I reviewed last year (June 1999). I thought the Sherwood was a bit too lush and sweet, but the '985 Mk.II managed to be rich-sounding, detailed, and powerful. It sounded more muscular than its 100Wpc would seem to indicate. The wattage specification is unambiguous: all channels driven into 8 $\Omega$ , 20Hz–20kHz, at less than 0.03% total harmonic distortion—and, I'll bet, without the application of massive amounts of sound-quality-destroying negative feedback.

One of the first tracks I auditioned after setting up the Rotel combo was Suzanne Vega's "Caramel," from Columbia/Legacy's 5.1-channel Dolby Digital DVD *The Best of Sessions at West 54th St.* It didn't hurt that the speakers were the Aerial Acoustics system, but it could have. That system is both revealing and not particularly efficient—the 7B fronts and CC-3 center are rated at 86dB, the SR3 surrounds at 85dB. Yet the '985 had no trouble driving the system with ease. No matter how loud I cranked it, or how difficult the source material, the Rotel exhibited an outstanding grip on the musi-

cal goings-on (and sound effects) while maintaining its essentially rich yet detailed sonic character. This is one amplifier that didn't seem to jack up the distortion when asked to spew power.

I drove the front L/Rs full-range to check out the '985's bass performance, and this proved to be one of the keys to its sonorous nature. I've heard tighter, more highly damped bass from some far more expensive and powerful amplifiers driving the Aerial 7Bs, but the '985 never sounded sloppy, out of control, or weak-bottomed. The very bottom of "Caramel's" electric bass was taut, extended, and dynamically well-developed. It was in the lower midbass that the richness lay, and that is what gave the amp its pleasing opulence.

From there up, the '985's sonic performance was equally exemplary—especially on top, where it never sounded edgy, thin, or bright any more than it sounded veiled, rolled-off, or syrupy. Instead, there was an ideal balance of transient speed, detail, delicacy, and air—especially when I drove it with a far more costly pre-pro than the RTC-965.

Powerful, detailed, dynamically supple, seamlessly balanced from top to bottom—I don't know what more you could want in a medium-powered 5.1-channel home-theater amplifier at any price, let alone \$999. Well, some of you may want a faster, tauter, more detailed sound—a different, equally

mended—and not just for those looking to spend a grand. Don't let the price or the power rating fool you: The RB-985 Mk.II is far better and more powerful than its price and specs might respectively indicate. Buy it and you won't look back.

## CONCLUSIONS

The RTC-965 offers outstanding sound quality for the money, or even for twice the money. Its weak suits are its lack of component-video switching—important only if you have multiple component video sources (HD tuner and DVD player, for examples) you need to switch between—its unlit front-panel controls, its lack of a front A/V connection for camcorders or other convenience uses, and its less than elegant remote control. If you can get past those, the RTC-965 is an outstanding value in a preamplifier-processor.

The RB-985 Mk.II THX is a no-brainer: Surprisingly compact and cosmetically pleasing, this 100W×5 amp is the RT-965's ideal companion.

I think you'll have a hard time finding an \$1898 receiver that can match the Rotels' combined performance. 