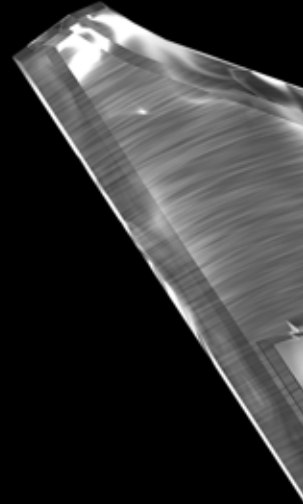




# Hearing is believing

Redefining audio for luxury home cinema



# Professional audio for the home

LOOK CLOSELY AT A MOVIE POSTER OR THE CREDITS OF A HOLLYWOOD PICTURE AND YOU'LL SEE THREE IMPORTANT WORDS: **DATASAT DIGITAL SOUND**. IT'S A MARK OF ASSURANCE THAT THE FILM DELIVERS AN OUTSTANDING DIGITAL SURROUND SOUND EXPERIENCE TO CINEMA AUDIENCES THROUGHOUT THE WORLD. NOW, DATASAT DIGITAL ENTERTAINMENT BRINGS THE SAME EXPERIENCE AND PROFESSIONAL AUDIO QUALITY TO LUXURY HOME CINEMA.

Since 1993, we've been pioneering Digital Surround Sound. We began as part of DTS before its cinema division became Datasat Digital Entertainment in 2008. We introduced millions of moviegoers to Digital 5.1 Surround Sound with the release of Jurassic Park. Since then, we've continually innovated to provide a better, richer and more realistic audio experience for professional cinema.

Our sound technology is in daily use by over 30,000 cinema screens across five continents. When Barco created the world's first commercially available 3D sound system for cinemas, they placed our audio processing technology at its heart. Today, the Datasat AP20 is rapidly becoming the audio processor of choice for high quality cinema sound due to its advanced features, audio quality, reliability and precise reproduction of both digital and analog sound.

Our professional audio products are developed by sound engineers for sound engineers. We may be sound engineers but we are audiophiles too. We have ensured our home cinema products are created by audiophiles for audiophiles. With one key difference. Ours are the only home cinema audio systems developed from the same technology platform as our award-winning professional cinema solutions.

The Datasat RS20i delivers a new dimension in two channel and surround sound excellence to luxury home cinema. The audio is transparent and true-to-source to ensure the listening experience is as good or even better than the best cinema. Designed to complement the Datasat RS20i, the Datasat range of amplifiers deliver extremely accurate and refined voice and music reproduction in the most demanding environments.



# 30,000

**Over 30,000 cinemas** worldwide use our digital audio systems. Today we work with top exhibitors to keep Datasat at the forefront of digital sound.

# 14,000

There have been more than **14,000 movie releases** worldwide – including 2,500 Hollywood titles – that feature our sound technology.

# 17

Since 1993, our team has released **17 products** for professional cinema and studios including audio processors, audio playback units, extended surround units and media playback systems.

# 1

Our digital sound technology was recognised by an **Academy Award** in 1996. Our team was presented with the Technical Award in the Scientific and Engineering Category for the design and development of the DTS digital sound system – which is now called Datasat Digital Sound.

# DATASAT RS20i



# Designed for the discerning listener

THE **DATASAT RS20i** IS THE MOST VERSATILE, CUSTOMISABLE AND FEATURE-RICH AUDIO PROCESSOR AVAILABLE TODAY FOR LUXURY HOME CINEMA. IT INTRODUCES A NEW LEVEL OF CRYSTAL CLEAR, HIGHLY REALISTIC TWO CHANNEL AND SURROUND SOUND AUDIO THAT MAKES THE LISTENER FEEL THAT THEY ARE RIGHT THERE IN THE MIDDLE OF THE ACTION.

Designed by the same Datasat team responsible for the Datasat AP20 professional audio processor, the circuitry design and audio quality of the Datasat RS20i is second to none. It comes with many features not previously seen in high end home audio processors including Dirac Live® advanced room optimisation and correction, 20 memory profile settings, stackable multiple EQs and extensive automation controls.

The Datasat RS20i delivers a level of refined, true-to-source audio above competitive processors. Soundtracks sound like they are being played from the original mixing desk and music comes alive. The inclusion of Dirac Live® means rooms can be optimised so that sound is delivered with pinpoint accuracy and improved detail.

With 16 channels of digital audio, the Datasat RS20i supports all sound formats available today including two channel, 5.1, 7.1 and 9.1 and will even support 11.1, 12.4, 14.2 and anything in between. Features such as HDMI v1.4a mean it can also seamlessly handle 3D video content. In addition, three expansion slots ensure that the Datasat RS20i can support exciting new audio developments as they happen.

Audio is tuned to create the most natural and immersive listening experience for the individual listener. A global delay on the input means that the audio can be offset to adjust for sync. Individual channel delays allow for adjustment of speakers for time alignment in full range or active crossover applications. It also means that speakers in the sound system can be positioned so that they are perfectly balanced with the acoustic behaviours of the room.

This power and flexibility is matched by stunning good looks. With front panel and chassis designed by Neal Feay Company, an award-winning designer of consumer electronics, the Datasat RS20i makes an attractive component of any luxury home entertainment system.

## Key Features

### 16 Channels Of Digital Audio

With 16 channels of digital audio processing available, the RS20i will accommodate all surround sound formats currently available - including true 3D sound. The RS20i supports up to 85 digital and analog inputs as well as 34 audio outputs. Outputs can be assigned to allow for bi-amping and tri-amping. The optional 8 channel output card allows for more active crossover options.

### Extensive Equalisation Functionality

In addition to the Dirac Live® optimisation, the RS20i comes with 31 bands of third octave EQ and three bands of parametric EQ for low end shaping, high and low shelving EQ, high and low bandpass filters, level and delay on all 16 channels. Each channel delivers the ultimate in flexibility and a stunning clarity of sound.

### Superior Bass Management

Advanced bass management features include full and user-adjustable bass control on each screen and surround channel. The RS20i supports up to 4 subwoofers with your home cinema system to enable enhanced surround settings such as 12.2 or 12.4.

### Market-Leading Room Optimisation

The RS20i is the only home cinema audio solution to feature the market-leading Dirac Live® room optimisation technology.

### 20 Memory Presets

The RS20i allows you to completely customise your listening experience and tailor it for your individual listening environment. 20 memory presets are available for saving and recalling complete EQ, input and output routing profiles. Create a custom EQ and output profile for symphonies, sporting events, music or concert Blu-rays. Create a completely different EQ for the same input source for your personal tastes. Add speakers to expand a stereo input and add Bass Management. All settings can be stored into the memory presets for instant recall. This customisable and powerful approach is the most flexible offered today..

### Wide-Ranging Support For Content Types

The RS20i supports all the major audio decoders from Dolby and DTS as well as an extensive choice of digital, analog and HDMI inputs. This allows your home cinema system to accommodate an extremely broad array of content types including 3D video passthrough.

### Ease Of Management

The RS20i presents you with a number of features to make management and control flexible and convenient. In addition to a range of remote control options – including smartphone, tablet and laptop control – the system includes Ethernet and RS232 connectors for automation or support access.



# Dirac Live®

## Making the entire room a sweet spot

EVERY ROOM IS DIFFERENT. IN ADDITION, TRADITIONAL HOME ENTERTAINMENT SYSTEMS DELIVER AUDIO TO A LIMITED SWEET SPOT AT A CENTRAL LISTENING LOCATION, **DIRAC LIVE®** ALLOWS THE DATASAT RS20I TO DELIVER OUTSTANDING AUDIO QUALITY TO THE ENTIRE LISTENING ENVIRONMENT.

Dirac Live® is state-of-the-art digital room correction technology that optimises the sound both in terms of the impulse response as well as the stationary frequency response. The result is substantially improved musical staging, clarity, voice intelligibility, and a deeper and tighter bass, not just in a small sweet spot but in the entire listening environment.

By digitally optimising the audio signal prior to sending it to the amplifiers, and by measuring the output from each speaker of the audio system, sound interference and distortion can be overcome. This allows the Datasat RS20i to produce much more transparent and true-to-source sound in even the toughest of operating environments.

### Key Features

#### Increased Musical Clarity And Voice Intelligibility

By digitally optimising the output from each speaker, so that it is perfectly adjusted to the acoustic behaviour of the listening environment, a much more transparent and realistic sound can be delivered. Voice intelligibility is improved and music becomes clearer.

#### True Impulse Response Optimisation

Dirac Live® is unique to the marketplace in that it provides true working impulse response correction as measured over larger listening regions. This impulse response is critical for multichannel and stereo perception. Localisation and stereo hearing, in general, depend on the similarity between and the quality of the channel impulse responses. Dirac Live® improves the precision and the clarity of the audio imaging.

#### Mixed Phase Correction

Dirac's mixed-phase filter technology provides the highest performance available. Loudspeakers measured in rooms are mixed-phase and consequently only a mixed-phase correction can restore the intended impulse response. Room correction systems that only provide minimum-phase or linear-phase correction fail to improve aspects which determine the perceived localisation and clarity of a sound event.

#### A Deeper And Tighter Bass

Acoustic room modes distort the character of the bass. Loudspeakers continue to ring even after a bass punch has been delivered due to mechanical restrictions. Dirac Live® effectively prepares the loudspeaker for the sound that is coming and reduces the settling time of the loudspeaker, thereby achieving a much tighter bass. By adjusting the speaker outputs to the room modes, the character of the bass is restored to that intended on the recording. The result is a tighter, deeper and more defined low end.

#### Restored Sound Stage

Dirac Live® restores the sound stage so that the localisation of sound events become much more detailed. Since stereo and multi-channel perception depends crucially on the similarity, or correlation, between the signals at the left and right ears, which in turn is determined by the impulse responses of the signal paths, only true mixed-phase impulse response correction can improve the spatial perception of a sound reproduction. Dirac Live® is the solution to achieve this in any size listening space.

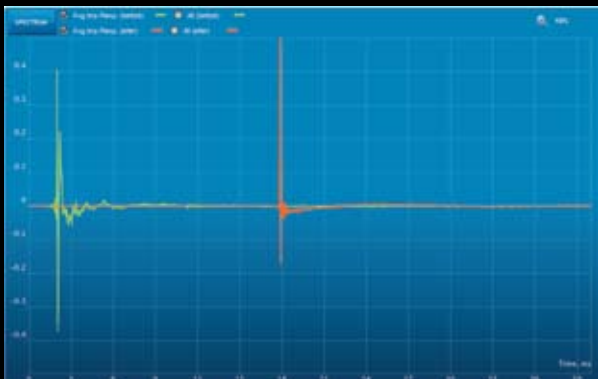
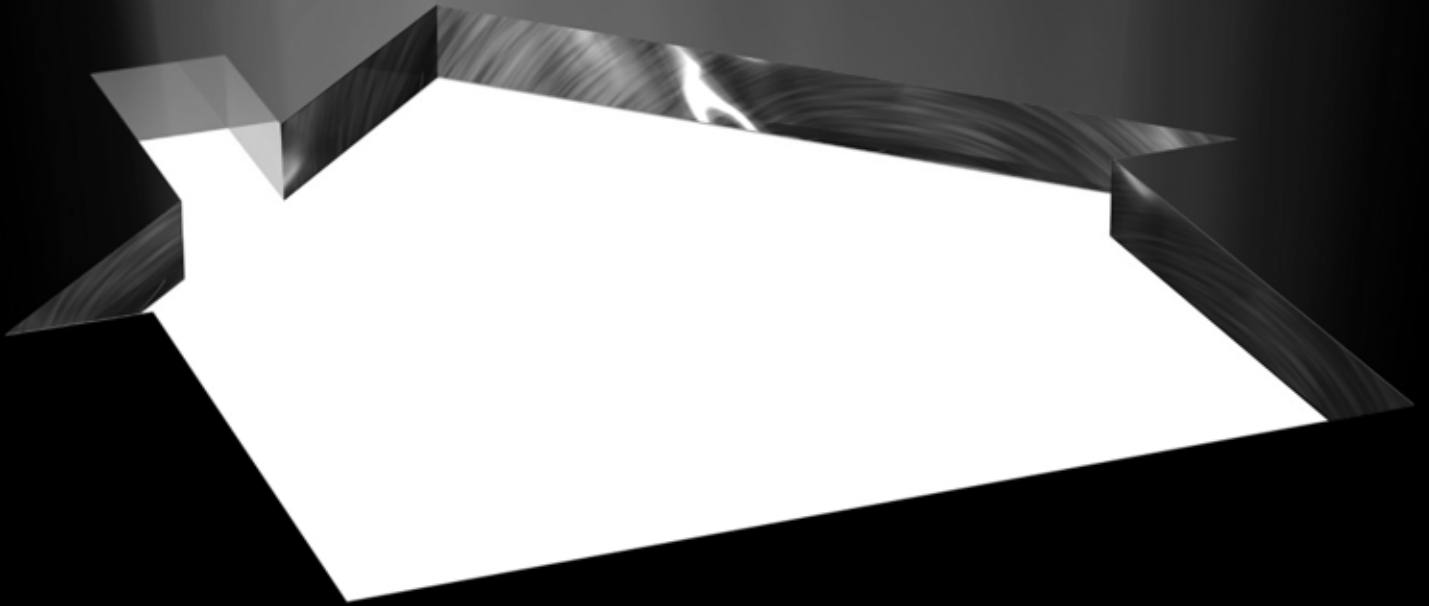
#### Reduced Listening Fatigue

Time-domain distortions, caused by diffraction, cross-overs, and early reflections, make it difficult for our brains to interpret the sound. A smooth frequency response and an aligned phase response make the sound more natural and prevent listening fatigue during prolonged listening sessions. With the unique phase response correction and magnitude response optimisation of Dirac Live®, listening becomes effortless and brings you one significant step closer to reality.

#### Magnitude Response Correction

Dirac's patented methods offer just the right resolution. Based not only on an average response, the stationary frequency response correction looks at the variations between different measurement positions and carefully makes a correction whose level of detail depends on the frequency-dependent spatial variations.





Impulse response correction



Frequency response correction

# Datasat Amplifiers

Powerful, elegant and super-quiet

THE DATASAT **RA2400** AND **RA7300** AMPLIFIERS BRING A NEW LEVEL OF QUALITY AND FLEXIBILITY TO HIGH-QUALITY HOME CINEMA AND MULTI-CHANNEL MUSIC SYSTEMS. PERFECT FOR ANYTHING FROM SMALL MEDIA SYSTEMS TO OUTFITTING AN ENTIRE HOME OR ESTATE. ADVANCED CIRCUITRY AND CAREFUL DESIGN DELIVERS ONE OF THE INDUSTRY'S QUIETEST AND MOST POWERFUL SERIES OF AMPLIFIERS.

The 2 channel Datasat RA2400 Stereo Power Amplifier and 7 channel RA7300 Multi-Channel Power Amplifier are designed to be versatile. The fully balanced differential design of both systems doubles amplifier speed (slew rate) while reducing noise by 50%.

In addition, any number of RA series amplifiers can be operated without thermal issues - the amplifiers are maintained at their optimum bias point independent of amplifier temperature.

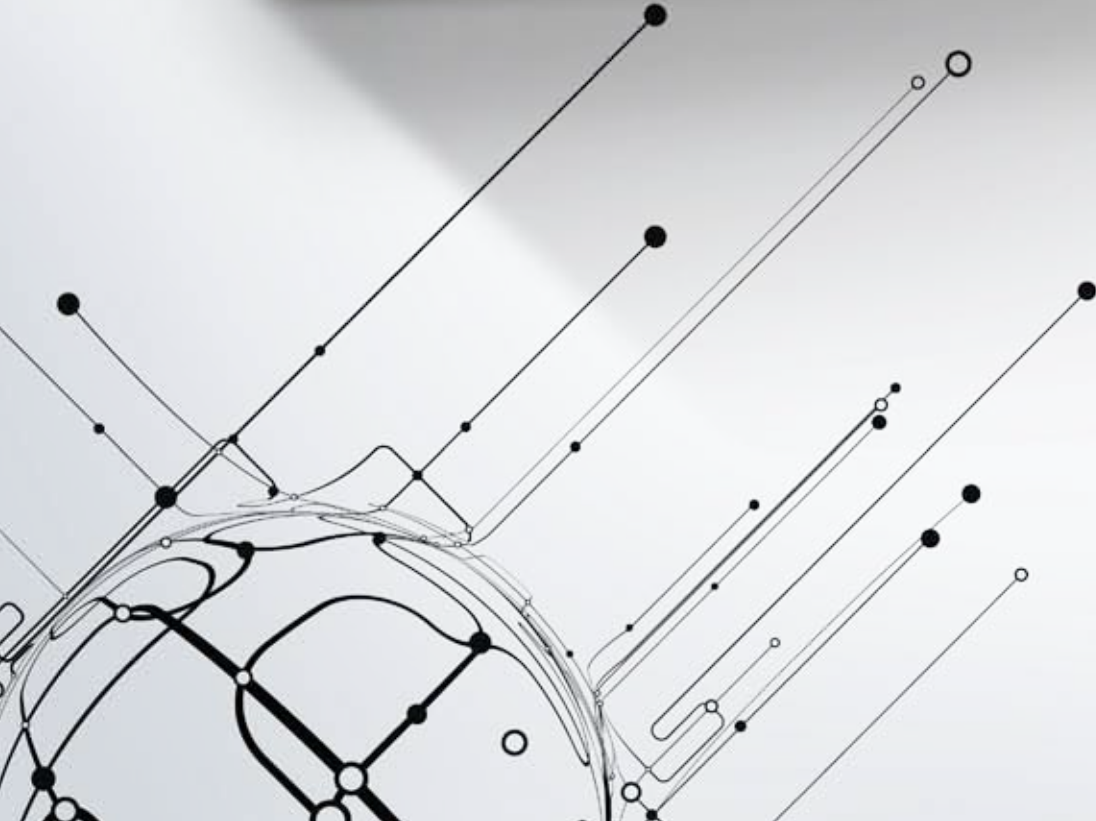
The RA2400 and RA7300 amplifiers are designed to complement the Datasat RS20i providing the ultimate listening experience for luxury home cinema.







# DATASAT RA7300



# High Quality Multi-Channel Power Amplifier

THE **DATASAT RA7300** IS A 7 CHANNEL POWER AMPLIFIER THAT COMBINES POWER WITH PERFORMANCE DELIVERING A TYPICAL SIGNAL-TO-NOISE RATIO OF >127dB. IT JUST MAY BE THE INDUSTRY'S QUIETEST AMPLIFIER.

Quiet operation is guaranteed in high performance environments. Dual thermal sensors control very low-speed fans with substantial heat sinks. The fans only operate when programme material demands additional cooling. This ensures that any fan noise is masked by programme content.

Each amplifier channel is designed with a separate power supply on a printed circuit board. Not only does this provide ease of replacement, it minimises crosstalk, noise and distortion. The amplifier uses current feedback to increase amplifier speed. This advanced circuitry and design yields twice the amplifier speed while halving noise.

With rated output of 300 watts into each of the seven channels, the RA7300 is powerful enough to deliver outstanding performance out of almost any system - whether operating in a home cinema or professional theatre.

## Key Features

### The Quietest Amplifiers Available

Dual thermal sensors, one per channel bank, control very low speed fans with substantial heat sinks. In this way, the RA7300 delivers a signal-to-noise ratio of >127dB (A weighted, referenced to full output).

### Enhanced Versatility

The RA7300 Multi-Channel Power Amplifier is rated for 4 and 8 ohm loads. It delivers 7 channels of 300 watts RMS power into 8 ohms. It delivers 450 watts RMS into 4 ohms.

### Consistent, Thermal-Independent Operations

The RA7300 amplifier uses dual-DC servos to ensure that DC offset is at a minimum and thermal-track transistors maintain the amplifiers at their optimum bias point independent of amplifier temperature. The amplifier operates without current limiting.

### Efficient Standby

The RA7300 amplifier meets or exceeds all international standards for standby power consumption including the new 1/2 watt standard.

### Innovative, Modular Design

Each amplifier channel is designed complete with power supply on a single printed circuit board. Separate power supplies for each channel minimise crosstalk, noise and distortion. This approach provides for ease of replacement and system maintenance.

### Extended Connectivity

The RA7300 features DB25 connectors with pass-through and channel select that mate perfectly with the Datasat RS20i. The RA series also features balanced XLR.

### Advanced Circuitry

The RA7300 amplifier features a fully balanced differential topology that doubles amplifier slew rate and reduces noise by 50%. The amplifiers use current feedback to increase amplifier speed.



# Quiet And Versatile Stereo Power Amplifier

BASED ON THE SOPHISTICATED CIRCUITRY AND DESIGN OF THE 7 CHANNEL DATASAT RA7300, THE **DATASAT RA2400** STEREO POWER AMPLIFIER CONTAINS A HOST OF ADDITIONAL FEATURES THAT TAKE ITS OPERATION TO THE NEXT LEVEL.

The RA2400 features dual mono design where each channel is completely independent. The unique amplifier design uses multiple small storage capacitors situated as closely as possible to the output transistors. Each channel has its own specially designed bridge rectifier.

Low noise, high performance operation is assured as no parts within the amplifier have any thermal limitations. Its isolated floating point output stage is immune to disruptions due to ground currents. In addition, seven independent regulators deliver a fully regulated power supply for the input stage.

The Datasat RA2400 features all the noise reduction features of the RA7300 as well as employing cascode operation for its input stage to further decrease the noise levels.

With rated output of 400 watts into 8 ohms, the RA2400 provides the ultimate in sound quality and versatility for the high end home entertainment user.

## Key Features

### The Quietest Amplifiers Available

Dual thermal sensors, one per channel bank, control very low speed fans with substantial heat sinks. In addition, the input stage of the RA2400 uses cascode operation for even lower noise. In this way, the RA2400 reduces amplifier noise by 50%.

### Enhanced Versatility

The RA2400 Stereo Power Amplifier is rated for 4 and 8 ohm loads. It delivers 2 channels of 400 watts RMS power into 8 ohms. It delivers 800 watts RMS into 4 ohms.

### Consistent, Thermal-Independent Operations

The RA2400 is designed to maintain the amplifier at optimum bias point independent of amplifier temperature. It operates without current limiting. The parts within the RA2400 have no thermal limitations – even the line fuse has been replaced by a magnetic circuit breaker.

### Efficient Standby

The RA2400 amplifier meets or exceeds all international standards for standby power consumption including the new 1/2 watt standard.

### Innovative, Modular Design

The RA2400 features dual mono design. Each channel is completely independent with fully regulated power supply for the input stage controlled by seven independent regulators.

### Extended Connectivity

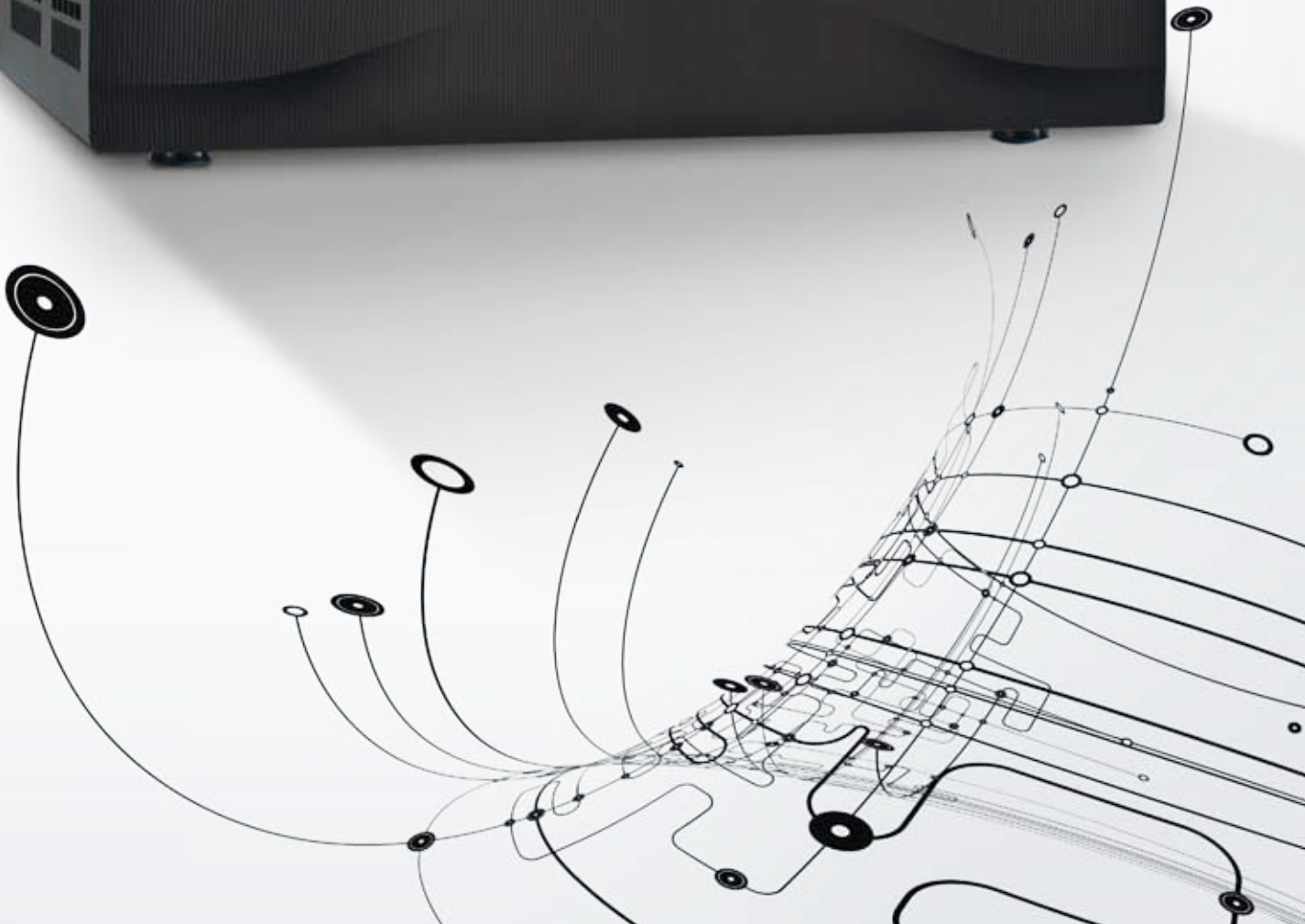
The RA2400 features DB25 connectors with pass-through and channel select that mate perfectly with the Datasat RS20i. The RA series also features balanced XLR.

### Advanced Circuitry

The RA2400 features a unique amplifier design using multiple small storage capacitors (40 1,000 microfarad units per channel) situated as close as possible to the output transistors. It features 20 output devices per channel and each channel has its own specifically designed bridge rectifier for smooth AC to DC conversion.



# DATASAT RA2400



# Product Specifications

## RS20i

### Digital Audio Decoders

#### Dolby

- Dolby AC3, Dolby TrueHD

#### DTS

- DTS-HD Master Audio / DTS ES / DTS 5.1 / Neo:6 / Neo:X

### Signal Inputs

#### HDMI Inputs

- Audio Channels: Up to 8 (LPCM, DTS-HD Master Audio & Dolby AC3)
- Connectors: 5 HDMI connectors (4 switched inputs and 1 output)
- HDMI V1.4a compliant digital audio with video pass-thru

#### Digital Audio Inputs

- Channels: 16
- Connectors: Two DB25 Female (Ch1-8 and Ch9-16)
- Digital Format: AES/EBU
- Sample Rates: 44.1kHz, 48kHz, 96kHz and 192kHz

#### Other Digital Audio Inputs

- Connectors: Two TOSLINK (optical S/PDIF) and 1 coaxial (S/PDIF)

#### Analog Audio Inputs

- Channels: 8 balanced, can be connected unbalanced
- Connector: DB25 (Female)
- Impedance: 10k ohms
- Reference level: 300mV RMS

#### Other Analog Audio Inputs

- Channels: 2 stereo single ended input pairs
- Connectors: 4 RCA jacks
- Impedance: 10k ohms
- Sensitivity Adjustable: -16dBv to -4dBv

#### Microphone Input

- Single channel -68dBv to -8dBv input with switchable +48V phantom power
- Connector: XLR female

### Signal Outputs

#### Digital Audio Outputs

- Channels: 16, fully routable as to input
- Connectors: Two DB25 Male (Ch1-8 and Ch9-16)
- Digital Format: AES/EBU
- Sample Rates: 48kHz, 96kHz and 192kHz

#### Analog Audio Outputs

- Channels: 16 (fully routable as to input), common mapping with Digital Outputs
- Balanced (can be connected unbalanced or single ended)
- Connectors: Two DB25 Male (Ch1-8 and Ch9-16)
- Level: 300mV with volume at -15, +26dBu max (balanced)
- Connector: 1 single ended RCA output, channel-selectable to drive an external monitor. Adjustable Levels, to 300mV RMS
- Connector: 1 single ended RCA output, summed output for the hearing impaired. Fixed Level Out, 300mV RMS

### Audio EQ

#### Dirac Live® Room Optimisation

- 12-Channel Dirac Live® room optimisation (16-channel Dirac to be available in future release)
- Dirac Live® Installer kit sold separately

#### 1/3 Octave EQ

- 16 channels - 31 user-adjustable bandpass filters
- Gain +/-6dB adjustable in 0.5dB steps
- Frequencies range from 20Hz to 20kHz

#### Parametric EQ

- 16 channels with 3 user-adjustable parametric filters for shaping Subwoofer response
- Adjustable from 20 to 200Hz, gain +/-6dB in 0.1dB steps
- Q range from 0.7 to 5

### Hi/Low/Bandpass Active Crossovers

- Adjustable from 20Hz to 20kHz; adjustable slope of 6, 12, 18 or 24dB per octave (12 and 24dB filters are Linkwitz-Riley crossover)

### Bass/Treble tone control

- Adjustable +/-6dB per channel
- Corner frequency for bass adjustable from 50Hz to 300Hz
- Corner frequency for treble adjustable from 1.5kHz to 12.0kHz

### Bass Management

- Full or adjustable high pass settings for screen and surround speaker
- Adjustable high pass filter for subwoofers
- Support for 0 to 4 subwoofers
- Optional phantom center

### Audio Delays

#### Individual Channel Delays

- 0 - 1000ms

#### Global Delay

- 0 - 1000ms

Note: Total delay per channel not to exceed 1000ms

### Automation Inputs/Outputs

- Connector: DB25
- 16 bi-directional GPIO's, optically isolated, mute and fader inputs
- External +5v@140mA

### Management

#### Remote Control

- RS232 DB9
- 10/100Mbps Ethernet
- Can be controlled by smart phone, iPad, Android based devices via iRule or VNC
- Crestron Integrated Device

### Setup/Operation Profiles

- Configurable for up to 20 user defined named input selections. Input selections include processing options along with a selected

named set for EQ and output channel profile

- Configurable for up to 20 user defined named EQ sets which include definitions for Dirac optimisation, third octave EQ, parametric EQ, bass and treble controls
- Configurable for up to 20 user defined output channel profiles which include output channel names, output routing, crossover high/low pass filters
- User defined input selections controllable by Touchscreen, GPIO, RS232, Ethernet
- Export/Load of user configurations via USB
- Software updateable by USB or Ethernet

### Power Requirements

- 100-130 VAC or 215-260 VAC, 50-60Hz. Input voltage range manually switched at the rear panel by rotating the fuse holder
- 90w power consumption

### Hardware Dimensions

- H/W/D: 5.60" x 17.40" x 17.63". Height with feet removed 5.25"
- H/W/D: 14.22 cm x 44.20 cm x 44.78 cm. Height with feet removed 13.34 cm.
- Shipping Weight (with packaging and accessories) 36 lbs (16.33 kg)
- RS20i unit weight 26.5lbs (12.02 kg)
- 3U 19" / 48.26 cm rackmount with optional ears

### Regulatory Compliance

- UL CB Scheme
- FCC Part 15, subpart B Class B
- CE
- RoHS compliant

### E&OE

All product specifications subject to change without notice. All trademarks are the property of their respective owners.



# RA2400



## 400 Watts RMS X 2 Channels

- All channels driven from 20Hz to 20kHz with no more than 0.05% THD into 8 ohms.

## 600 Watts RMS X 2 Channels

- Same as above into 4 ohms.

## IMD Less Than 0.05%

## Gain: 28dB

### Circuit Topology

- Fully balanced design utilising thermal tracking, current feedback and DC Servo.

### Connectivity

- Input: XLR balanced, DB25 balanced
- Output: 5-way binding posts, DB25 pass through

## 12 Volt Trigger Input For Remote Turn-On

### Signal-To-Noise Ratio

- >127dB referenced to full output.

### Frequency Response

- +/- 0.1dB, 20Hz to 20kHz, 1 watt output

### Power Bandwidth

- 5Hz-100kHz

## Dimensions

- Fan cooled, 4 Rack Units Chassis
- H/W/D: 17.78cm x 43.18cm (48.26cm with rack ears) x 53.34cm
- H/W/D: 7" x 17" (19" with rack ears) x 21"



# RA7300



## 300 Watts RMS X 7 Channels

- All channels driven from 20Hz to 20kHz with no more than 0.05% THD into 8 ohms.

## 450 Watts RMS X 7 Channels

- Same conditions as above into 4 ohms.

## Dual AC Cords

## IMD Less Than 0.05%

## Channels

- User selectable for any of 8 channels from DB25 input connector via rear panel gold-plated sealed DIP switches.

## Gain: 28dB

### Circuit topology

- Fully balanced design utilizing thermal tracking, current feedback and DC Servo.

### Connectivity

- Input: XLR balanced, DB25 balanced
- Output: 5-way binding posts, DB25 pass through

## 12 Volt Trigger Input For Remote Turn-On

### Signal-to-Noise Ratio

- >127dB referenced to full output.

### Frequency Response

- +/- 0.1dB, 20Hz to 20kHz, 1 watt output

### Power Bandwidth

- 5Hz to 100kHz

## Dimensions

- Fan cooled, 5 Rack Units Chassis
- H/W/D: 22.23cm x 43.18cm (48.26cm with rack ears) x 53.34cm
- H/W/D: 8.75" x 17" (19" with rack ears) x 21"

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**DATASAT**  
DIGITAL ENTERTAINMENT