

Pioneer sound.vision.soul

High-end Car Audio 2004

The quest for perfect car audio

Achieving the ideal in-car sound — where all signals are expressed in their purest form — was no more than a dream. The sound quality and the sound stage have been compromised, using the harsh cabin environment as an excuse, with its irregular shape, narrow space, numerous listening positions and the inherent internal and external noises. It had never been possible to bridge the final gap, and experience the true original sound with all of its subtle refinements.

Until now.

Even the finest details, which before faded into silence, can now be heard. There is no more awareness of speakers, no concept of positioning. Only a total immersion in pure and natural sound with superior expression.



Pioneer was intent on solving the dilemma of imperfect in-car sound. A team of top Pioneer engineers set out to design the ultimate hi-fi system, and then adapt it for the car. Their goal was to transcend 'digital' sound, and create a system that sounded more natural and lifelike than any other system. This standard was stringently applied; nothing short of 'natural sounding' was accepted. In order to meet these strict standards, entirely new techniques and materials were developed. No compromises whatsoever. No expense was spared.

Once these incredibly high-level components were ready, they were connected with an optical digital link. So the signal, from source to power amp, maintained the utmost purity. This optical digital transmission was absolutely essential to the systems' overall performance. Consequently, the Optical Digital Reference (ODR) system was born, the finest entertainment system ever built for the car.

Matched up with individually handcrafted RS speakers, ODR components deliver a truly unparalleled performance. Pioneer sees no boundaries to perfection, especially when it comes to these legendary speakers.

For those who appreciate the finest, and demand the best...

Car audio perfection has finally arrived



Treat your senses to the real sound of music

The revolutionary Optical Digital Reference (ODR) system is the only answer to perfect in-car sound quality. Specially selected parts and state-of-the-art technology combine to create the ideal music space within a vehicle. Totally essential to the system's superior performance is the optical digital transmission system. With an optical digital connection between the CD tuner and amplifier, transmission of the audio signal is completely digital. That means no deterioration of sound quality from D/A or A/D conversion. The ODR system also avoids noise typical of analogue or coaxial connections. The sound remains unaffected by electromagnetic radiation or electrical noise inside the car, of any kind. This Pure Digital System accurately transmits the music signal, resulting in beautifully clear and vivid audio, completely free of distortion — the ultimate pure sound. And there's more. The digital tuning system with a high-precision DSP uses a number of complex sound stage control techniques to accomplish the ideal interior acoustics within the cabin, giving you a much more natural sound stage. Even control of all system components is state-of-the-art, from the CD tuner to the digital amplifiers to the high-end RS speakers. These RS speakers are handcrafted by top Pioneer speaker designers. Specially designed for the ODR system, no expense was spared to create the absolute highest level of speaker performance. Only with the ODR system and high-end RS speakers you can achieve the ideal sound reproduction, with the signals as pure as possible. For the first time, you will hear the subtlest sound details, and the real contour of music in your car. True and pure, just like the original.

Highly accurate CD mechanism for pure signal reading

Developed exclusively for use with the RS-A9, this CD mechanism is the best quality possible. Every detail was considered to ensure that the music signal read from the CD is completely accurate, with virtually no vibration or noise to affect the signal. The quality of the whole system depends on it. The high-precision data pick-up has the capability to read the utmost subtlest music signals; even after hours of continuous reproduction and high heat, reliability is maintained thanks to a stable hologram technique and laser diode. The chassis is copper-plated to avoid magnetic induction noise. The clamper is made of high-performance damping material (M2052 damping alloy), which prevents degradation of the digital signal by minimising the pick-up control current caused by disc vibration. An enhanced high torque spindle motor stabilises the sound quality more quickly, if revolution changes during start-up or external influences affect playback. All these improvements contribute to a highly stable and pure digital audio signal with reproduction of all the fine details.



High-quality CD mechanism

Specially selected, high-quality acoustic parts

Only the highest quality parts were chosen for the RS-D7R, specially selected through listening trials. A 70 µm thin copper film substrate — twice as thick as a conventional one — results in lower impedance and larger current capacity for all circuit blocks and CD mechanisms. The custom condenser also ensures larger capacity, as well as a higher sound quality. A high-purity OFC (Oxygen-Free Copper) power cable and a highly efficient and temperature-stable amorphous choking coil accomplish a full sound quality.

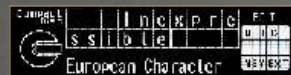


Acoustic Condensers

Superb user interface: vivid OEL display and new remote controller

The RS-D7R features a dazzling white OEL display. Its smart functionality lets you control and confirm operating information at a glance. This sophisticated interface also offers comprehensive control, quick display response, and high contrast and brightness even in direct sunlight.

The wireless remote controller has been designed for maximum functionality and easy use with the system. The remote slides open to reveal number keys, and soft keys on the headunit display appear to aid guidance of all functions. Thanks to the twin cross control keys, the headunit and the remote controller can simultaneously operate different functions: CD tracks can be changed via the cross key of the main unit, while the remote controller is used to adjust the equaliser or network.



Disc Title Memory display



Tuner display

Separate power supply systems eliminate interference

There are 7 power supply systems — 3 for the CD mechanism/digital audio section and 4 for the control/display/tuner mechanisms. The two system groups are separated to eliminate signal interference between the audio system and the control mechanism. As a result, the purity of the digital signal is preserved. The influence of power fluctuation is minimised, as the power systems drive with extreme stability. A large capacity power supply condenser is equipped with a specially chosen back-up power line, which further ensures high sound quality.

Reduce noise with Display Off mode

For those who insist on absolute audio perfection, the Display Off mode is available to eliminate the slightest noise created by the OEL display's power conversion circuits. In this way, the audio signal remains pure and unaffected by noise, and unprecedented low distortion is realised.



Display Off mode

Powerful and centralised system control

The RS-D7R facilitates state-of-the-art control over each unit of the entire system. Firstly, excellent functionality and fully centralised operation of the digital amplifiers is guaranteed. This ensures utmost control of the music signal, transmitted from the CD transport to the preamp via the optical digital transmission system. The unit also enables excellent control of DVD functions, such as for the XDV-P9-II multi-DVD player. The highest quality sound of DVD is reproduced thanks to the optical digital connection. Additionally, this unit can control a multi-CD player, TV tuner and DAB tuner, making a totally integrated system possible.

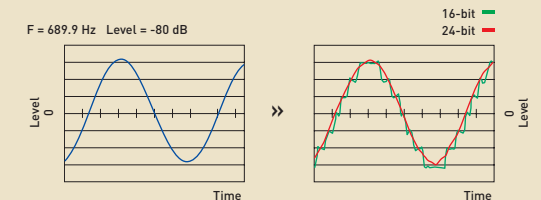
Elegant and high-quality cosmetic design

Simple and stylish, the RS-D7R is designed with a dark silver, hairline-finish aluminium fascia and a 5 mm thick acrylic display. The volume knob is of satin-finished aluminium with diamond cut effect and other knobs are chromium-plated, contributing to the elegant, sophisticated appearance. The bright white OEL display contrasts beautifully with the aluminium front.

More natural sound with Hi-bit conversion

Unfortunately, some of the micro-elements are lost with the 16-bit CD audio signal. Hi-bit conversion re-quantises the 16-bit digital data from a CD into 24 bits; consequently, the resolution is enhanced, offering an impressive S/N ratio and a wider dynamic range. This technology serves to restore the lost elements and reproduce a more nuanced, natural sound closer to the original performance. The hi-bit system transmits the 24-bit digital audio signal to digital processors of the RS-A9, so there is absolutely no distortion or deterioration of the waveform — and pure audio quality is maintained.

Comparison of 24-bit and 16-bit signal transmission DAC Output Flow



Original wave (F = 689.9 Hz Sine Wave)

The 24-bit signal is transmitted more accurately, closer to the input waveform of the original sound.



RS-A9 DIGITAL INTEGRATED AMPLIFIER

NEW

With its digital signal processing, equaliser and network control functions, Pioneer's RS-A9 Digital Integrated Amplifier really is a cut above the rest. These high-performance functions put you in total control of your sound stage. With this smart unit, you can finally create a perfectly fine-tuned system in your car. An optical digital input allows the amp to connect digitally to the RS-D7R System Control CD Tuner, preserving the highest quality of the audio signal and forming a pure digital system. The unit also includes 3 digital outputs so that you can easily combine it with one or more additional RS-A7 Digital Power Amplifiers to drive the speakers with the utmost sonic purity. It is suited especially for tweeters and midrange speakers, bringing out the clear and smooth tone of delicate strings. This amplifier's thoroughly engineered design and specialised parts further ensure high-quality sound and a true digital signal. Now you can enjoy the same class of music you get from your high-end home audio unit whilst on the move.

4 x 100 W (2 x 300 W) Max.

Powerful 32-bit floating-point SHARC Digital Signal Processors

The digital network of the RS-A9 amplifier features 3 ultra-high-performance 32-bit floating-point SHARC digital signal processors (DSP). Three sets of DSP were necessary to implement the independent left-channel signal processing and right-channel signal processing, and the advanced operation coefficient processing. The capacity of these DSPs is several times that of conventional ones, which was needed to support the FIR filter. Moreover, through the use of a 32-bit floating-point DSP, the small signal truncating effects of fixed-point DSPs are avoided, thereby significantly improving the dynamic range and signal-to-noise ratio.



SHARC Digital Signal Processor

FIR filter

A FIR filter has been integrated into the RS-A9 amplifier as a signal processing function for the crossover network and graphic equaliser. As a result the digital sound stage controls and equalisation are based on highly accurate processing, to achieve the ideal listening environment in the cabin. Although a FIR (Finite Impulse Response) filter has various advantages over a conventional IIR (Infinite Impulse Response) filter, such as excellent phase and time response characteristics, it requires a larger DSP capacity — hence, the three 32-bit floating-point SHARC digital signal processors (DSP). FIR filters also have the advantage of more accurate and efficient calculation methods than IIR filters. This amplifier also uses a sufficient number of FIR taps (memory or filtering capacity), so there is less ripple and more stopband attenuation.

Linear phase and minimum delay

In the RS-A9 amplifier's FIR filter, two types of response characteristics, linear phase and minimum delay, can be chosen.

In linear phase, the delay through the filter is the same at all frequencies, so there is no phase distortion. At the crossing point of a crossover network, the exact phase characteristic is acquired as a direct wave from the speaker, also when time alignment is used. This results in a more natural sound stage in the cabin.

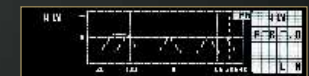
Regarding time response characteristics, if the signal crosses at low-pass, linear phase results in a pre-echo and a delay of about 0.2 seconds between the FIR filter input and output.

With minimum delay, there is no pre-echo or straight phase delay; however, there is phase rotation and surges at the crossing point of a crossover network.

Therefore, linear phase is recommended for systems when there is no crossover on the low frequency. Minimum delay has the advantage of reduced delay, so better synchronisation of images and sound is realised, useful for audio-visual systems.

L/R independent 4-way digital crossover network

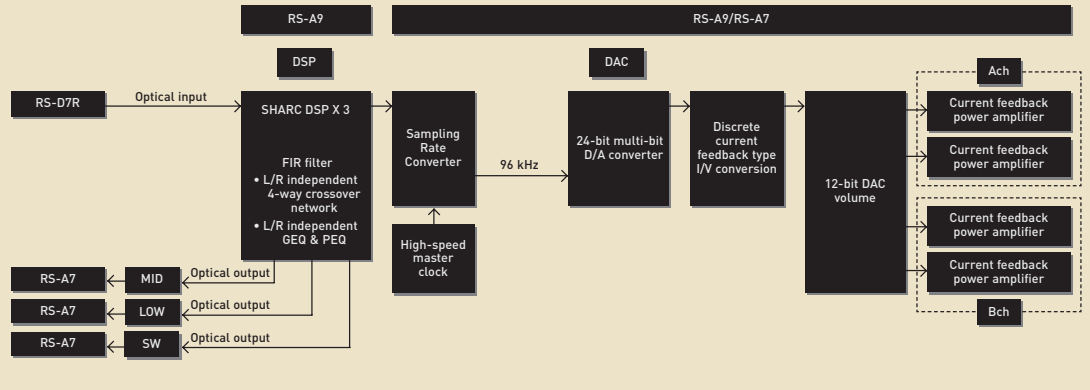
The left/right independent 4-way (low, mid, high, subwoofer) digital crossover network is indispensable for the ultimate tuning of a system. The RS-A9 uses digital controls to obtain the ideal settings of the cut-off frequency, slope and phase for each band. Settings can also be manually adjusted while you listen to the music, and confirmed in real time on the display. The built-in crossover network enhances the flexibility of the adjustment and allows for the most precise sound tuning.



Crossover Network display



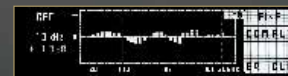
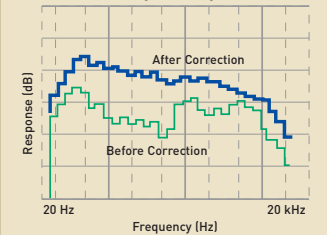
ODR System Chart



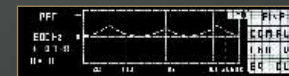
L/R independent 31-band digital graphic equaliser and L/R independent 3-band digital parametric equaliser

The imperfect acoustic conditions of the cabin — irregular shape, narrow space, reflection of interior materials — can cause peaks and dips in the frequency. Often dips occur in the middle range while peaks hit around 200 Hz and 2 kHz. The RS-A9 uses a high-performance left/right independent 31-band digital graphic equaliser and a left/right independent 3-band digital parametric equaliser. Both equaliser functions allow precise adjustment of the frequency range from 20 Hz to 20 kHz (1/3 octave) and sound pressure level by 0.5 dB steps. Two preset and three user memory positions are available in order to store favourite settings. The fine adjustments realise a flatter frequency and therefore improved acoustic properties for superlative smooth sound.

Example of Adjustment using 31-band Graphic Equaliser



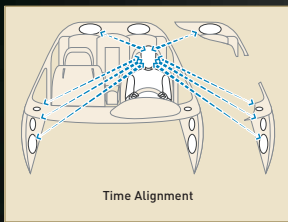
31-band Graphic Equaliser display



3-band Parametric Equaliser display

Full Balanced Pure Digital System

These amplifiers preserve the digital signal received from the RS-D7R control CD tuner with the utmost purity — thanks to the optical digital connection from the CD tuner to the RS-A9, and then if connected, to one or more RS-A7 units. If the amplifier is used in bridge connection, it will become a full balanced pure digital system. When the D/A converter of one channel operates in reverse, the circuit composition is perfectly balanced from digital output to speaker output. Common mode noise is sharply diminished and high S/N and high dynamic range can be realised.



Time Alignment

The RS-A9's Time Alignment function adjusts the speaker sound output timing so that the sound from each speaker reaches the listener at the exact same time. The sound output can be adjusted in 7.7 mm steps, based on the distance between the listener and each speaker unit. This assures clear sound positioning to create the ideal sound stage. Then, the Position Fine Tuning function automatically adjusts the output timing and level from each speaker based on the number and the position of the people in the cabin. You can have your sound exactly the way you like it, whatever your positioning.



Time Alignment display

RS-A7 DIGITAL POWER AMPLIFIER

NEW

The RS-A7 is a true high-performance Digital Power Amplifier. Using Class AB amplification, it's huge on power and on high-quality sound. You'll just love what you hear. The amplifier can be digitally connected to the RS-A9 Digital Integrated Amplifier using its optical digital inputs, to ensure that you maintain the utmost quality of the audio signal from the RS-D7R System Control CD Tuner. With no conversion to analogue necessary, you don't lose any of the digital signal from the original music source, so the real expression of the music can be reproduced precisely. Its high-performance circuit allows for a stable power supply. You'll be blown away by its enormous capacity for a subwoofer or low channel output. It's sound at full-blast. And with loads of cool features and new technologies, this amplifier is the perfect answer to pure listening pleasure.

4 x 100 W (2 x 300 W) Max.

24-bit multi-bit D/A converters

High-performance 24-bit multi-bit D/A converters from the Burr-Brown Corporation are used for the 96 kHz sampling frequency. Arranged in Sign-Magnitude conversion mode, they basically eliminate zero-cross distortion and offer low distortion and wide dynamic range. Combine this with the 8 times oversampling digital filter and the result is unparalleled sonic excellence.



24-bit multi-bit D/A converter

L/R independent power supply

A separate DC-DC converter, equivalent to a conventional 4-channel amplifier, has been implemented for both the right and left channels in the RS-A9 and RS-A7. The power supply capacity was doubled as a result. Moreover, the direct construction design minimises the distance between the power supply circuit and the amplifier circuit, and the parts are arranged to eliminate signal interference and power supply noise between circuits. In this way, a more direct and extremely pure signal route is realised, for a more clean and fresh sound.



L/R independent power supply

Current feedback type power amplifier with discrete I/V conversion circuit

In order to realise a high through rate, wide range, and low distortion, current feedback type power amplifiers were adopted for the RS-A9 and RS-A7. Music can therefore be reproduced with a higher resolution and higher speed. These amplifiers also feature an I/V conversion circuit with a discrete composition for more flexibility. This type of circuit was needed to transform the stair-shape current waveform of a DAC output into voltage, and to achieve a short settling time and a gentle rectangular wave response. The amplifier circuit was designed with the aid of computer simulation and fine-tuned by a series of listening tests, for the optimal tone quality.



12-bit DAC volume

Although strict listening tests and measurements were carried out on many types of high-grade electronic VR IC, few gave a satisfactory performance and sufficient tone quality. With the RS-A9 and RS-A7, a carefully selected external operational amplifier is used for the buffer amplifier — a wide use DAC —, which meets Pioneer's high standard of tone quality and performance. The 12-bit DAC volume has 60 steps for the utmost convenience.

High sampling frequency: Sampling Rate Converter

A built-in sampling rate converter (SRC) circuit converts the 44.1 kHz digital output of a CD to 96 kHz. The sound expression is expanded, and muddy sound typical of an operational amplifier is eliminated. Moreover, the digital output signal of the sampling rate converter is relocked by a very precise master clock.



Sampling Rate Converter

High-speed master clock

Not only is it important that the data is read precisely, but also that the time axis is accurate. Both are essential to reproduce the exact waveform. The RS-A9 and RS-A7 use a high-precision master clock circuit, which eliminates the influence of jitter as much as possible. The use of a crystal oscillator and elaborate clock adjustment by hand contribute to the highly accurate master clock signal. Compared to conventional circuits, jitter is reduced by 50%. Distortion of the time axis is therefore completely eliminated to reproduce refined and subtle sound, clear and crisp as you've never heard before.

High-quality sound design

Only the highest quality parts were chosen for these amplifiers. And audiophiles will truly appreciate the results. The power amplifier is firmly supported by a sub heat sink and a copper-plated steel plate. There is virtually no current distortion or vibration affecting the chassis. The copper plate is also shielded to reduce the influence of radiation. The newly designed heat sink is very efficient at dissipating heat flow; operation is very stable even at full power, so there is very little resonance. A black coating was used for the PCB to eliminate the effects of noise caused by dispersed light from the chassis. The power supply uses non-magnetic brass screws and washers for the finishing touch.



CS-S01RS 3" (7.7 cm) MIDRANGE

NEW

This midrange speaker is part of a perfect multi-system. After thorough analysis, superior technology was developed specifically for this speaker to achieve the most natural and accurate sound reproduction. The pulp-based composite cone with reinforcing ribs is complemented by a titanium centre cap. Coated with DLC (Diamond Like Carbon), the cap surface is harder, which improves high-range frequency reproduction. A corrugated edge was also specially created to support the cone and absorb vibration more efficiently. With its rigid zinc die-cast back chamber, tweeters and mid-bass speakers can be connected more smoothly, no matter what the installation conditions, and solid midrange sounds are reproduced. When the chamber is not used, wide-range sound comparable to a mid-bass speaker can be achieved. This speaker features an ultra-strong neodymium magnet; a heavy zinc full-basket frame supports the magnetic circuit for receiving maximum power from the source. Its unique structure and material enable high rigidity, low resonance and no influence on cone movement. The patent-pending resonance-resistant tungsten holder is jointed to the frame at 5 points to eliminate any resonance.



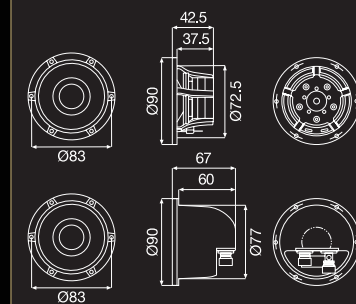
DLC (Diamond Like Carbon) coated titanium centre cap



Zinc die-cast back chamber



Gold-plated binding post-screw terminals

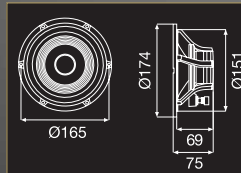


60 W Max.

TS-M01RS 6-3/4" (17 cm) MID-BASS DRIVER

NEW

This mid-bass driver has been skilfully crafted to extend the wide-range comparable to that of full-range speakers, yet with faithful reproduction of the overall sound spectrum. Numerous trials and meticulous selection of materials went into creating the pulp-based composite cone, and the resulting sound quality is ideal. Reinforced with ribs, the cone enhances the highest resonant frequency and eliminates all distortion. The centre cap is constructed from another specially developed pulp material, improving sound properties at the upper range and suppressing resonance from the magnetic circuit. The magnetic circuit itself uses an ultra-strong neodymium magnet and is supported by a heavy zinc full-basket frame, which reduces unnecessary reaction and resonance. Finally, a patent-pending resonance-resistant tungsten holder eliminates resonance between the damper and the frame.



120 W Max.



Pulp-based composite cone with reinforced ribs



Full-basket structure 5-spoke zinc die-cast frame

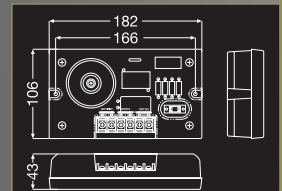


Resonance-resistant structure tungsten damper holder with 5 points support



UD-N01RS 2-WAY PASSIVE CROSSOVER NETWORK

Designed exclusively for the TS-T01RS and TS-M01RS in the combination of PRS series, this crossover network comprises first-rate acoustic elements including a large hollow coil and a high-quality condenser. The 70 µm copper film substrate decreases impedance, which reduces noise and increases current capacity. Resonance has been cleverly eliminated too by mixing high-rigid tungsten into the case material.

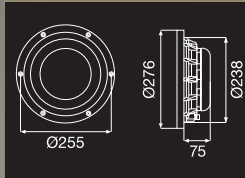


NEW

TS-W01RS 10" (25 cm) SUBWOOFER

NEW

Enjoy the clean reproduction of sounds even at the very low frequencies with this high-grade subwoofer. Its cone, made of a lightweight, high-rigid pulp composite with carefully selected materials, combines with the centre cap to offer unprecedented high-quality reproduction of sounds as low as 50 Hz and even lower. The specially designed butyl rubber edge guarantees superb and accurate vibration response; a large voice coil provides highly efficient vibration of the whole cone without flexure; and the 12 large-sized ultra-strong neodymium magnets in the magnetic circuit create powerful and precise motion. By maximising the opening at the back, back pressure balance is easily controlled so that even the heaviest of basses can be reproduced exactly. Its high-rigid aluminium die-cast frame offers high damping properties. All this comes in an attractive, ultra-thin package that is extremely easy to install.



300 W Max.



Centre cap integrated pulp-based composite cone



Opening at the back side



Shallow design aluminium die-cast frame / Ø140 mm large-sized heat-resistant voice coil



Pioneer Reference Series (PRS)



DEX-P9R COMPONENT CD RDS TUNER



Pioneer's lengthy experience with high-end audio systems continues with the DEX-P9R ultra-high-quality CD RDS component tuner. The DEX-P9R transfers digital data directly from the CD to the audio processors, so you get as close as possible to the original sound, with an absolute minimum of distortion and noise. The DEX-P9R can function alone, but when optically paired with the DEQ-P9 high-tech digital preamp/equaliser, it forms a system with unrivalled audio, DSP and network functions. If you really want to experience what this system is capable of, then make sure to use thoroughly engineered and pure sound-proven amps and speakers, such as the PRS series. You'll get an unparalleled listening experience.

DEQ-P9 DIGITAL PREAMP/EQUALISER

By adding this DSP unit to the DEX-P9R, the discerning driver can enjoy the versatility, sonic purity and distortion-free control of digital signal processing and network functions. By converting the incoming signal to digital form, it enables you to balance the output signal to match the acoustic characteristics of your car and to create your personal sound profile by using the parametric equaliser and Sound Field Control functions.



PRS AMPLIFIERS

Pioneer's PRS amps are designed to drive speakers to the limit — or rather, beyond the limit. Thanks to the MOSFET power supply, these amps offer more distortion-free sound power than ever before. In addition, a 4-channel crossover (PRS-X340) gives you several power options, while a high/low switch lets you choose between 3 – 9 kHz and 40 – 120 Hz. The bandpass filter makes bi-amplifying a breeze. If you want truly awesome power, you can even mount two PRS series amps together.



PRS-X340 4-CHANNEL BRIDGEABLE POWER AMPLIFIER

4 x 150 W (2 x 500 W) Max.

PRS-X320 2-CHANNEL BRIDGEABLE POWER AMPLIFIER

2 x 200 W (1 x 800 W) Max.

PRS-X220* 2-CHANNEL BRIDGEABLE POWER AMPLIFIER

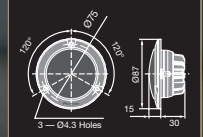
2 x 120 W (1 x 400 W) Max.

* Not available in the UK.



TS-T3PRS 1-1/4" (3 cm) FLUSH MOUNT SOFT DOME TWEETER

With an extended low-frequency response, this tweeter improves the overall imaging of your audio system. A large-sized Soft Dome diaphragm ensures higher sound imaging without harshness and an ultra-strong Neodymium magnet makes transient response faster and more precise. The carefully tuned Sealed Performance Chamber extends the crossover frequency.

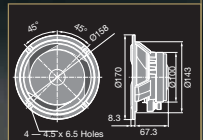


200 W Max.

TS-M7PRS 6-3/4" (17 cm) MID-BASS DRIVER

This Mid-Bass Driver was designed to reproduce real strings and vocals with less distortion. Thanks to the KEVLAR® brand Fibre Composite Cone and the Butyl Rubber Symmetrical Balanced Surround, you can expect smooth, accurate sound from mid-bass to upper midrange frequencies.

DuPont™ KEVLAR®



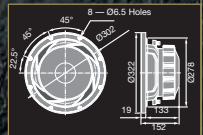
200 W Max.

TS-W12PRS 12" (30 cm) DUAL VOICE COIL C-TYPE SUBWOOFER

VCCS™
Voice Coil Cooling System

DuPont™ KEVLAR®

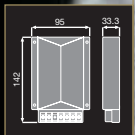
This powerful subwoofer is equipped with a Voice Coil Cooling System (VCCS) and a giant magnetic circuit that keep the subwoofer cool, so that the sound stays natural. There's also a dual-layer long voice coil (2 x 4 ohm) which, combined with the extremely light KEVLAR® brand Fibre Composite Cone, results in a very strong moving force.



1200 W Max.

UD-N2PRS 2-WAY PASSIVE CROSSOVER NETWORK

Pioneer has designed a 2-way, passive crossover network especially for use with the TS-T3PRS and TS-M7PRS. With its discriminating EMI (Electromagnetic Interference) shielding chassis, this network provides simple, clear and precise sound solutions.



DuPont and/or DU PONT-TORAY CO., LTD. produce KEVLAR® brand fiber. DuPont™ and KEVLAR® are trademarks and registered trademarks of DuPont or its affiliates and are used under license by Pioneer.

Features and Specifications

RS-D7R SYSTEM CONTROL CD RDS TUNER

- Tuner**
- RDS (PI, PS, AF, TP/TA), PTY (Search and Alarm), News Interrupt feature and Radio Text
 - High-speed PLL ARC 5 synthesiser tuner with BSA (Best TP Station Auto Search), BSM (Best Stations Memory) and PNS (Pulse Noise Suppressor)
 - 24 station presets
- CD Player**
- High-quality CD mechanism with copper-plated chassis
 - Hi-bit conversion
 - Digital Direct
 - Fast forward/reverse
 - Track Search/Scan/Repeat
 - Track/Manual search
 - Random Play
- Last Position Memory
 - Disc Title Memory
 - CD Text
 - CD-/R/CD-RW playback with Skip Play
- Audio**
- IP-Bus input/output
 - Optical input/output
- General**
- Full audio control of RS-A9 Digital Integrated Amplifier
 - Multi-CD Control with Disc Title Memory, List Search and CD Text
 - Source TV Control
 - DAB Tuner Control
 - Source DVD Control
 - External Unit Control via IP-Bus (2 units)
- AUX-In (with optional CD-RB20)
 - Slide-type Remote Control
 - Digital Clock
 - OEL white-colour display illumination
 - Display Off mode
 - Rotary volume
 - High-quality auto-flap mechanism (motor driven)
 - Removable front panel with safety warning beep
 - Cellular telephone auto muting
 - Flexible angle installation (0 – 60°)
 - OFC (Oxygen-Free Copper) power cables
 - Copper-plated chassis
 - Aluminium finished front panel

RS-A9 DIGITAL INTEGRATED AMPLIFIER

- DSP/Network/Equaliser features (See amplifier charts at right and next page for RS-A9 amplifier features and specifications)**
- 3 ultra-high-performance 32-bit floating-point SHARC Digital Signal Processors (DSP)
 - FIR Filter
 - Linear phase and minimum delay phase
 - L/R independent power supply and amplifier circuit
 - 31-band L/R independent graphic equaliser (1/3 oct) with level control (0.5 step, ±12 dB)
 - 3-band L/R independent parametric equaliser (1/3 oct) with level control (0.5 step, ±12 dB)
 - 4-way independent L/R crossover network (High, Mid, Low, Subwoofer)
 - Crossover frequency: 20 Hz – 20 kHz (1/3 oct)
 - High: LPF: 8 – 20 kHz; HPF: 1.6 – 20 kHz
- Mid: LPF: 2 – 20 kHz; HPF: 160 Hz – 10 kHz
Low: LPF: 250 Hz – 10 kHz; HPF: 25 – 250 Hz
Subwoofer: LPF: 40 – 250 Hz; HPF: 20 – 100 Hz
- Slope: 0°, -6, -12, -18, -24, -36, -48, -72 dB/oct
 - Phase: Normal/Reverse
 - Level: High/Mid/Low: 0 – -24 dB (0.5 dB step); Subwoofer: +10 – -24 dB (0.5 dB step) - Mute
 - Time Alignment for clear sound focus
 - Listening Position selector (FR/FL/F/OFF)
 - Time/distance: 0 – 192.5 cm (0.77 cm step)
 - Level: 0 – -30 dB (0.5 dB step)
 - 24-bit multi-bit Burr-Brown D/A converters
 - High-performance 8 times oversampling digital filter
 - Ultra precise sound master clock circuit
- Up sampling (44.1 kHz → 96 kHz) by SRC (Sampling Rate Converter)
 - Optical input for digital connection with RS-D7R System Control CD RDS Tuner
 - 3 Optical outputs (Mid/Low/Subwoofer) for digital connection with RS-A7 Digital Power Amplifiers
 - Parametric Bass/Treble
 - Bass: 63, 100, 160, 250 Hz (±12 dB)
 - Treble: 4, 6.3, 10, 12.5 kHz (±12 dB)
 - Electronic (DAC) Volume
 - Non-magnetic power terminal and speaker terminal
 - Copper-plated chassis
- * Not available for HPF of high mode.**

DEX-P9R COMPONENT CD RDS TUNER

- Tuner**
- RDS (PI, PS, AF, TP/TA), PTY (Search and Alarm), News Interrupt feature and Radio Text
 - High-speed PLL ARC 5 synthesiser tuner with BSA (Best TP Station Auto Search), BSM (Best Stations Memory) and PNS (Pulse Noise Suppressor)
 - 24 station presets
- CD Player**
- 24-bit D/A converter with 8 times oversampling digital filter
 - High-quality CD mechanism
 - Hi-bit conversion
 - Fast forward/reverse
 - Track Search/Scan/Repeat
 - Track/Manual search
 - Random Play
 - Last Position Memory
- Disc Title Memory
 - CD Text
 - CD-/R/CD-RW playback with Skip Play
- Audio**
- Separate Bass/Treble
 - Source Level Adjuster
 - Fader
 - 3 Gold-plated RCA pre-outs (Front + Rear + Non Fading)
 - High Voltage output
 - IP-Bus input/output
 - Optical input/output
- General**
- Full audio control of DEQ-P9 Digital Preamp/Equaliser
 - Multi-CD Control with Disc Title Memory and CD Text
- Source TV Control
 - DAB Tuner Control
 - Source DVD Control
 - External Unit Control via IP-Bus (2 units)
 - AUX-In (with optional CD-RB20)
 - Slide-type Remote Control
 - Digital Clock
 - OEL blue-colour display illumination
 - Display Off mode
 - Auto-flap mechanism
 - Removable front panel with safety warning beep
 - Cellular telephone auto muting
 - Flexible angle installation (0 – 60°)
 - Copper-plated chassis
 - Aluminium finished front panel

DEQ-P9 DIGITAL PREAMP/EQUALISER

- 31-band L/R independent graphic equaliser (1/3 oct) with level control (0.5 step, ±12 dB)
 - 4-way independent L/R crossover network (High, Mid, Low, Subwoofer)
 - Crossover frequency: 20 Hz – 20 kHz (1/3 oct)
 - High: LPF: 8 – 20 kHz; HPF: 1.6 – 20 kHz
 - Mid: LPF: 2 – 20 kHz; HPF: 200 Hz – 10 kHz
 - Low: LPF: 250 Hz – 10 kHz; HPF: 25 – 250 Hz
 - Subwoofer: LPF: 25 – 250 Hz; HPF: 20 – 100 Hz
 - Slope: 0°, -6, -12, -18, -24, -30, -36 dB/oct
 - Phase: Normal/Reverse
 - Level: +10 – -24 dB
 - Mute
 - Time Alignment for clear sound focus
 - Listening Position selector (FR/FL/F/OFF)
 - 24-bit Burr-Brown D/A converters
 - High-performance 8 times oversampling digital filter
 - Optical input for connection with DEX-P9R
 - High Voltage output
 - Gold-plated 8-channel RCA output (High/Mid/Low/Subwoofer)
 - Parametric Bass/Treble
 - Electronic Volume
 - Gold-plated power screw terminals
 - Copper-plated chassis
 - Installation kit
- * Not available for HPF of high mode.**

AMPLIFIERS FEATURES	RS-A9	RS-A7	PRS-X340	PRS-X320	PRS-X220*
Circuit type	Current Feedback/ Class AB	Current Feedback/ Class AB	Voltage Feedback/ Class AB	Voltage Feedback/ Class AB	Voltage Feedback/ Class AB
Max. output power	4 x 100 W 2 x 300 W	4 x 100 W 2 x 300 W	4 x 150 W 2 x 500 W	2 x 200 W 1 x 800 W	2 x 120 W 1 x 400 W
Continuous output power (RMS) [14.4 V]	4 x 50 W 4 x 75 W 2 x 150 W	4 x 50 W 4 x 75 W 2 x 150 W	4 x 37.5 W 4 x 75 W 2 x 150 W	2 x 50 W 2 x 100 W 1 x 200 W	2 x 30 W 2 x 60 W 1 x 120 W
DIN output power [DIN 45324, +B = 14.4 V]			4 x 115 W or 2 x 360 W	2 x 163 W or 1 x 486 W	2 x 87 W or 1 x 313 W
Variable Crossover network					
A channel			LPF-Low, LPF-High, HPF-Low, BPF	LPF-Low, LPF-High, HPF-Low, HPF-High	
B channel			40 – 120 Hz 3 – 9 kHz		
LPF/HPF Network (-12 dB/oct)				50 – 120 Hz	50 – 120 Hz
Input level/gain control			•	•	•
PWM Regulated MOSFET power supply			•	•	•
High Voltage Input capability (600 mV – 6.5 V)			•	•	•
Load impedance capability	• [2 – 8 Ω]	• [2 – 8 Ω]	• [2 – 8 Ω]	• [2 – 8 Ω]	• [2 – 8 Ω]
Variable Bass Emphasis (0 – 18 dB)				40 – 120 Hz	60 Hz
Subsonic filter: 15 Hz [-24 dB/oct]				•	
24-bit multi-bit Burr-Brown D/A converter	•	•			
8x oversampling digital filter	• [96 kHz input]	• [96 kHz input]			
Optical digital input/output	1/3	2/-			
IP-Bus input/output	1/1	1/1			
Analogue SP	4 ch [HIGH, MID/LOW]/ 2 ch Bridge [HIGH]	4 ch [MID/LOW/SW]			
DAC volume	• [60 step]	• [60 step]			
TA Volume	•	•			
Gold-plated RCA input and output terminals (full range) enabling Link Top connection			•	•	•
Gold-plated screw-type speaker terminals	• non-magnetic type	• non-magnetic type		•	•
Screw-type speaker terminals			•	•	•
Large gold-plated power/ground terminals (screw type)	• non-magnetic type	• non-magnetic type		•	•
High-performance balanced isolator circuit			•	•	•
Reversible endcaps for installation versatility			•	•	•
MOSFET output section			•	•	•
Sampling frequency	44.1 kHz	44.1 kHz			
Mode selector	Address: Master Only Channel Select (H-H/H-M/H/L)	Address: 1 – 4 Mode: 3 position (MID/LOW/SW)			
Power indicator	•	•			
Installation kit	•	•			

AMPLIFIERS SPECIFICATIONS	RS-A9	RS-A7	PRS-X340	PRS-X320	PRS-X220*
DIN output power [DIN 45324, +B = 14.4 V]			4 x 115 W or 2 x 360 W	2 x 163 W or 1 x 486 W	2 x 87 W or 1 x 313 W
Continuous output power [RMS] watts 14.4 V [20 – 20 kHz/4 Ω]	4 x 50 W [0.02 %]	4 x 50 W [0.02 %]	4 x 37.5 [0.04 %]	2 x 50 [0.08 %]	2 x 30 [0.08 %]
[20 – 20 kHz/2 Ω]	4 x 75 W [0.02 %]	4 x 75 W [0.02 %]	4 x 75 [0.4 %]	2 x 100 [0.8 %]	2 x 60 [0.8 %]
[Bridged 4 Ω]	2 x 150 W	2 x 150 W	2 x 150 [0.4 %]	1 x 200 [0.8 %]	1 x 120 [0.8 %]
Frequency Response [Hz] (+0 dB, -1 dB)	5 – 100,000	5 – 100,000	10 – 50,000	10 – 50,000	10 – 50,000
Distortion [%]	< 0.002 [1 kHz/ 4 Ω]	< 0.002 [1 kHz/ 4 Ω]	0.05 [10 W/1 kHz]	0.01 [10 W/1 kHz]	0.05 [10 W/1 kHz]
S/N Ratio [dB]	105	105	105	100	100
Separation [100 – 10 kHz] [dB]	> 80	> 80			
Input Level Control			400 mV – 6.5 V	400 mV – 6.5 V	400 mV – 6.5 V
Max. Current consumption [A/4 Ω]	31.0	31.0	43.7	32.5	19.2
Chassis Size [W x H x D mm]	330 x 71 x 585	330 x 71 x 585	264 x 65 x 345	264 x 65 x 290	264 x 65 x 240
Unit Weight [kg]	13.0	13.0	7.0	5.5	4.5

Warning: Pioneer Power Series amplifiers are designed to supply higher output power than conventional amplifiers.

Therefore, please use a subwoofer whose nominal input power is about twice the connected Power Series amplifier's continuous output power.

* Not available in the UK.

TS-T01RS 3.5 cm SUPER WIDE-RANGE TWEETER

- Ø35 mm ion-plated titanium dual arc-ring diaphragm¹
- Large neodymium magnet
- Heat-resistant aluminium ribbon voice coil
- Brass equaliser
- Spherical zinc die-cast frame
- Resonance-resistant structure tungsten holder*
- Gold-plated binding post-screw terminals
- Maximum input power: 120 W
- Nominal input power: 50 W
- 1,200 – 48,000 Hz, 95 dB [1 W/1 m]
- Impedance: 6 Ω
- Unit weight: 0.6 kg
- Dimensions: Ø68 x 64 [D] mm
- Cutout hole: Ø72 mm [with aluminium fitting bracket]
- Mounting depth: 46 mm [with aluminium fitting bracket]
- Aluminium fitting brackets included

TS-S01RS 7.7 cm MIDRANGE

- Pulp-based composite cone with reinforced ribs
- DLC (Diamond Like Carbon) coated titanium centre cap
- Corrugated design cloth surround with damping material
- Large neodymium magnet
- Heat-resistant copper ribbon voice coil
- Full-basket structure 5-spoke zinc die-cast frame
- Resonance-resistant structure tungsten damper holder with 5 points support*
- Zinc die-cast back chamber
- Gold-plated binding post-screw terminals
- Maximum input power: 50 W¹ / 60 W² [f_c = 800 Hz, -12 dB]
- Nominal input power: 15 W
- 70 – 24,000 Hz¹ / 160 – 24,000 Hz², 86 dB [1 W/1 m]
- Impedance: 4 Ω
- Unit weight: 0.5 kg
- Dimensions: Ø90 x 42 [D] mm¹ / Ø90 x 67 [D] mm²
- Cutout hole: Ø72.5 mm¹ / Ø77 mm²
- Mounting depth: 37.5 mm¹ / 60 mm²

¹Unit alone

²With back chamber

TS-M01RS 17 cm MID-BASS DRIVER

- Pulp-based composite cone with reinforced ribs
- Corrugated design Conex surround with new damping material
- Large neodymium magnet
- Heat-resistant copper ribbon voice coil
- Full-basket structure 5-spoke zinc die-cast frame
- Resonance-resistant structure tungsten damper holder with 5 points support*
- Gold-plated binding post-screw terminals
- Maximum input power: 120 W
- Nominal input power: 50 W
- 35 – 11,000 Hz, 89 dB [1 W/1 m]
- Impedance: 4 Ω
- Unit weight: 1.6 kg
- Dimensions: Ø174 x 75 [D] mm
- Cutout hole: Ø151 mm
- Mounting depth: 69 mm

* Patent pending

TS-W01RS 25 cm SUBWOOFER

- Centre cap integrated pulp-based composite cone
- Tapered thickness butyl rubber surround
- 12 large neodymium magnets
- Ø140 mm large-sized heat-resistant voice coil
- Aluminium die-cast frame
- Gold-plated binding post-screw terminals
- Shallow design
- Recommended enclosure volumes: 14 – 28 Litre
- Maximum input power: 300 W
- Nominal input power: 150 W
- 20 – 3,000 Hz, 86 dB [1 W/1 m]
- Impedance: 4 Ω
- Unit weight: 6.6 kg
- Dimensions: Ø276 x 94 [D] mm
- Cutout hole: Ø238 mm
- Mounting depth: 75 mm

UD-N01RS 2-WAY PASSIVE CROSSOVER NETWORK

- High-quality condenser
- Large hollow coil
- 70 µm thick copper film substrate
- High-rigid tungsten-blend case material
- Crossover Frequency: 5,000 Hz
- Low Pass Filter (LPF): -12 dB/oct
- High Pass Filter (HPF): -12 dB/oct
- Load impedance
- Mid-Bass [TS-M01RS]: 4 Ω
- Tweeter [TS-T01RS]: 6 Ω
- Tweeter attenuation: 0 dB/-3 dB
- Unit weight: 0.8 kg
- Dimensions [W x H x D]: 182 x 43 x 106 mm

Each RS speaker is individually handcrafted by skilled speaker professionals, so it is necessary to measure each speaker's performance one by one. Therefore, you will find the exact parameters, specific to each individual speaker, enclosed in the speaker package. RS speakers are created with the highest quality standards and make it possible to achieve true sound perfection.

TS-T3PRS 3 cm FLUSH MOUNT SOFT DOME TWEETER

- Ø30 mm polyester fibre diaphragm
- Large neodymium magnet
- Aluminium die-cast flange
- Aluminium die-cast back chamber
- Removable metal mesh protector
- Maximum input power: 200 W
- Nominal input power: 60 W
- 1,000 – 30,000 Hz, 92 dB [1 W/1 m]
- Recommended crossover frequency: 3,000 Hz
- Impedance: 8 Ω
- Unit weight: 0.3 kg
- Dimensions: Ø87 x 45 [D] mm
- Cutout hole: Ø62 mm
- Mounting depth: 30 mm

TS-M7PRS 17 cm MID-BASS DRIVER

- KEVLAR® brand fibre composite cone
- Symmetrically balanced butyl rubber surround
- Aluminium die-cast frame
- Gold-plated binding post-screw terminals
- Ready for small enclosure application [e.g. kick panel] Recommended enclosure volume: 5 Litres
- Maximum input power: 200 W
- Nominal input power: 60 W
- 28 – 10,000 Hz, 91 dB [1 W/1 m]
- Impedance: 4 Ω
- Unit weight: 1.5 kg
- Dimensions: Ø170 x 76 [D] mm
- Cutout hole: Ø143 mm
- Mounting depth: 67 mm

TS-W12PRS 30 cm DUAL VOICE COIL C-TYPE SUBWOOFER

- KEVLAR® brand fibre composite cone
- Dual-layer rolled urethane surround
- Dual 4 Ω voice coil design [2 or 8 Ω]
- 2 Ω rated [parallel wired]
- 8 Ω rated [series wired]
- VCCS [Voice Coil Cooling System]
- 4-spoke aluminium die-cast frame
- Gold-plated binding post-screw terminals
- Recommended enclosure volumes: 28 Litre ±10 %
- Maximum input power: 1200 W
- Nominal input power: 300 W
- 15 – 2,000 Hz, 92 dB [1 W/1 m]
- Unit weight: 11.9 kg
- Dimensions: Ø322 x 152 [D] mm
- Cutout hole: Ø278 mm
- Mounting depth: 133 mm

UD-N2PRS 2-WAY PASSIVE CROSSOVER NETWORK

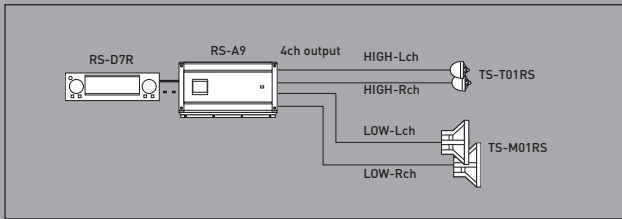
- EMI [Electromagnetic Interference] shielding chassis
- Selected quality devices
- Crossover Frequency: 3,000 Hz
- Low Pass Filter (LPF): -12 dB/oct
- High Pass Filter (HPF): -12 dB/oct
- Load impedance
- Midrange [TS-M7PRS]: 4 Ω
- Tweeter [TS-T3PRS]: 8 Ω
- Tweeter attenuation: 0 dB/-3 dB
- Nominal input power: 60 W
- Unit weight: 0.4 kg
- Dimensions [W x H x D]: 142 x 33 x 95 mm

Disclaimer: Features and specifications of the products described or illustrated in this catalogue are correct at the time of printing but could change as production changes might occur. This catalogue may contain typographical errors and the colours of the depicted products may deviate slightly from reality. Consult your Pioneer dealer to ensure that actual features and specifications match your requirements. This catalogue may contain references to products that may or will not be available in your country.

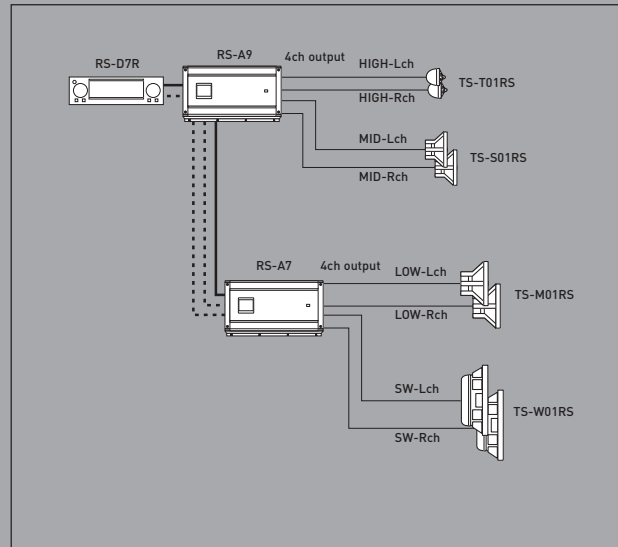
Recommended System Set-ups

You can design various systems with the ODR components, high-end RS speakers and/or PRS units, from a simple 2-way system to a full-fledged 4-way system. The ODR Full Balanced System (RS-A9 and three RS-A7's) is the perfect balanced system from the digital output in the circuit of the amplifier, delivering the utmost high-quality sound.

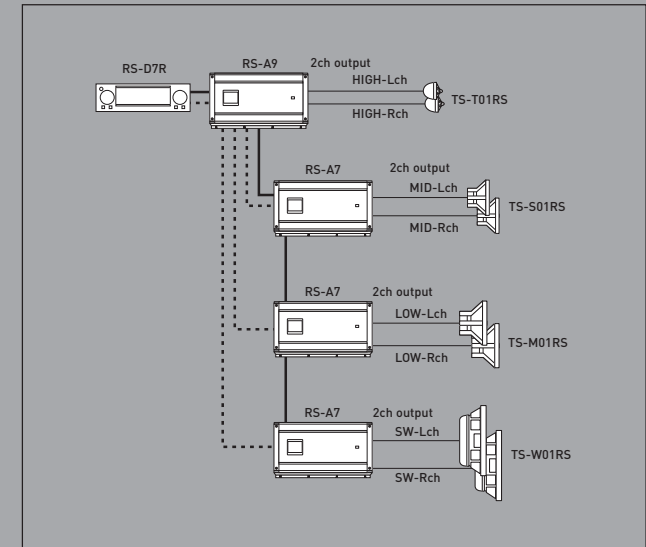
ODR & RS — 2-way System



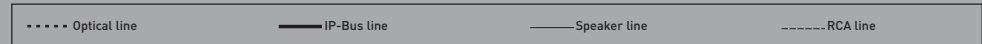
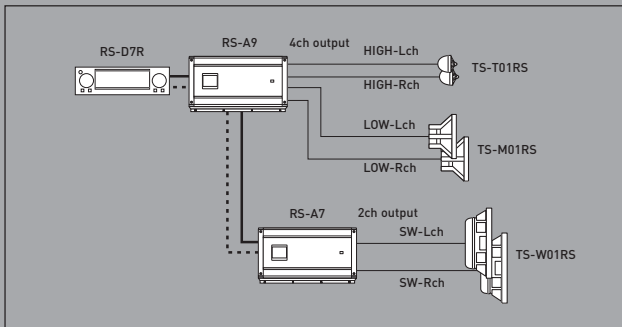
ODR & RS — 4-way System



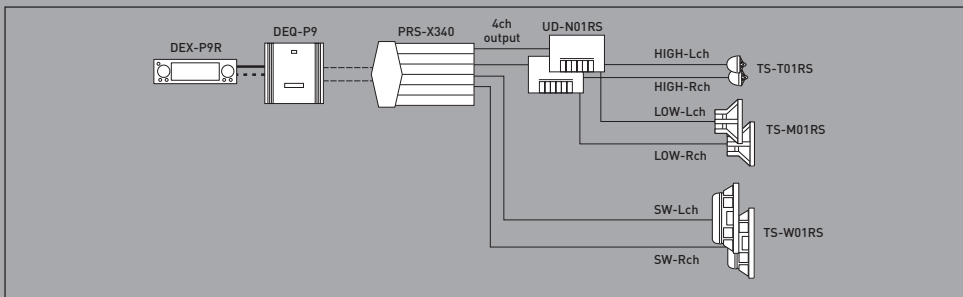
ODR & RS — 4-way Full Balanced System



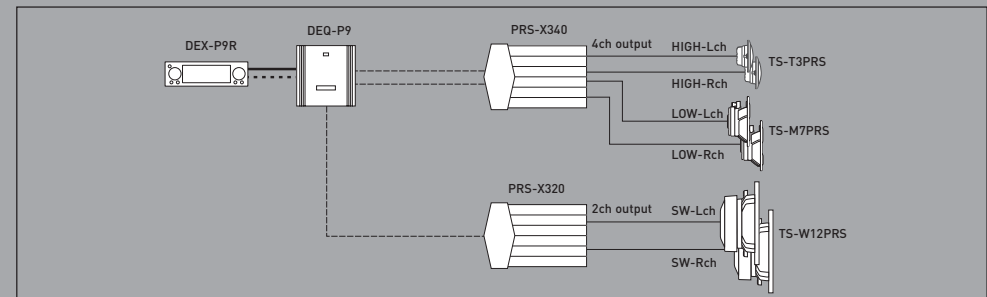
ODR & RS — 3-way System



PRS & RS — 3-way System



PRS — 3-way System



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