

## DVD player - PULSAR DVD 1210 R



Our aim in developing the **DVD 1210 R** was twofold: to supply excellent picture quality, and to satisfy our audiophile demands in the reproduction of standard audio CDs. It is in the latter respect that the early generation of DVD players has failed to meet customers' expectations. Many machines have problems reading and playing back CDs and DVDs, but in any case the sound from CD sources has not even reached mid-range levels. We have therefore incorporated concrete measures designed to ensure that our **DVD 1210 R** supplies CD sound playback at the same quality as our CD players.

### Connection elements



<b>Analogue Out</b>	The analogue output of the DVD player supplies a fixed-level output signal. It is designed for connection to a pre-amplifier, integrated amplifier or receiver featuring its own volume control.
<b>Digital Out Stereo</b>	Co-axial digital output for connection to an external digital/analogue converter, digital amplifier or digital recorder. Please be sure to use high-quality 75 Ohm cable terminating in Cinch connectors. This output always supplies a digital stereo signal.
<b>Digital Out Surround</b>	<b>Optical digital output</b> for connection to a digital surround decoder. This output supplies PCM, AC-3 and DTS signals. <b>Co-axial digital output</b> for connection to a digital surround decoder. Please be sure to use high-quality 75 Ohm cable terminating in Cinch connectors. This output supplies PCM, AC-3 and DTS signals.
<b>Analogue Out</b>	Sound output for television sets, video-recorders and surround decoders.
<b>Video Out</b>	Picture output for television sets, video recorders and surround decoders.
<b>S-Video Out</b>	Socket for SVHS television sets, video recorders and surround decoders.
<b>AV Out (Scart)</b>	Socket for televisions, video recorders and surround decoders with SCART connectors. This output supplies RGB and video signals.
<b>R-Link</b>	Control interface for connection to a T+A amplifier featuring the RLink control system.

### Drive and mechanism

We use the most modern system on the market: a pressure-cast chassis with a stable linear laser guidance unit consisting of two matched lasers of different wave lengths designed specifically for CD Audio and DVD. The drive reads all types of CD perfectly. The proven mechanical construction of our CD players, with their multiple de-coupling measures, ensures that no mechanical shocks are able to influence the servos. The system is also completely vibration-free, and features outstanding data retrieval capabilities - even with scratched CDs. As in our CD players, the unit features a dual mains PSU, with separate

sections for the digital and analogue circuits and separate, generously dimensioned transformers.

### ***Decoder***

A high-quality ST OMEGA chip is used as the MPEG decoder, and this, together with a 10-bit / 27 MHz video D/A converter, guarantees excellent picture quality. To ensure high-fidelity amplification of the video signals six video amplifiers of discrete construction are used. The composite, Y/C and RGB sections are completely separate, again with the aim of obtaining optimum picture quality.

### ***Digital outputs***

The DVD 1210 R features three digital outputs: one co-ax and one TOSLINK output for connection to surround decoders, supplying PCM and the usual multi-channel formats (AC3, DTS, MPEG), together with a pure stereo digital output. The latter can be connected to a D/A converter or a digital pre-amplifier such as our PD 1200 R. Jitter-free output is guaranteed by the re-synchronisation feature which is used in much T+A equipment; this takes the form of a sophisticated multi-frequency re-synchronisation circuit.

### ***Converter***

The audio data supplied by the decoder is converted by a system featuring exactly the same level of refinement as our CD players. A fully programmable signal processor accepts the data and subjects it to a sampling rate conversion process, which includes the set of five oversampling filters which is familiar from our CD players. The conversion process is carried out by the latest 24-bit/192 kHz converters (AD1852), which are used in double mono, fully symmetrical mode.

### ***Analogue outputs***

The carefully selected analogue output stages feature main outputs with an impedance of only 22 Ohm, making them ideal for connection to a high-quality pre-amplifier. They also feature a secondary output for connection to television sets and Pro-Logic decoders.

These no-compromise measures are based on many years of experience with our own high-end CD players. They are the reason for the superior sound of our **DVD 1210 R**.

### ***Sampling rate conversion with 5 switchable conversion algorithms Standard-filter (long FIR-filter)***

The long FIR-filter is the standard oversampling filter used in digital technology. Advantages: Extremely linear frequency response in the audible range, very high stop band attenuation, linear phase, constant group delay.

### ***Filter 1 (short FIR-filter)***

The short FIR-filter has similar characteristics to the long **FIR** filter, but very much lower coefficient (160) and consequently considerably lower pre- and post-echoes. Advantages: Extremely linear frequency response in the audible range, high stop band attenuation, linear phase, constant group delay.

### ***Filter 2 (IIR-filter)***

This filter is a classic 8th order IIR-filter. It exhibits absolutely no pre-echo effects, albeit a slight tendency to post-echo. This is also a feature of natural instruments, and in any case the post-echo is usually masked by the normal audible signal. Advantages: No pre-echo at

all, no treble loss, very high stop band attenuation.

### **Filter 3 (Bezier- / IIR-filter)**

This combination circuit consists of three cascaded filters: a Bezier filter, an IIR filter and a second Bezier filter. It represents a good compromise between transient response and frequency response. Advantages: Virtually no pre-echo, minimal post-echo (in masking range), relatively flat frequency response, no pronounced treble loss.

### **Filter 4 (Bezier filter)**

The Bezier-filter is the ideal filter in terms of transient response, virtually no pre- or post-echo, linear phase, slight treble roll-off at 20 kHz. Advantages: Optimum transient response, linear phase, constant group delay.

## **Specifications**

<i>Disc drive</i>	Precision aluminium diecast linear drive GaA1As demi conductor laser: 785 nm / 10mW (VCD / CD) 650 nm / 7mW (DVD)
<i>Synchronism</i>	Quartz-controlled, oscillations not measurable
<i>Digital filters</i>	Fully programmable 56 bit signal processor, with 5 different filter types for sampling rate conversion to 192 kHz, 8-times oversampling and 56-bit resolution
<i>Filters</i>	<u>FIR short</u> , <u>FIR long</u> , <u>IIR</u> -, <u>Bezier</u> -, <u>Bezier-IIR</u> -filter
<i>D/A converter</i>	Double mono differential circuit, two dual 24 Bit / 192 kHz sigma/delta converters
<i>Analogue filter</i>	Phase-linear Bessel filter 3rd order, 75 kHz limit frequency
<i>Frequency response</i>	20 Hz - 20 KHz
<i>Distortion / intermodulation</i>	< 0,0015 %
<i>Effective System dynamics</i>	97 dB
<i>Signal-noise ratio</i>	109 dB
<i>Signal-noise ratio (unweighted)</i>	106 dB
<i>Channel separation 1 kHz / 10 kHz</i>	106 dB / 100 dB
<i>Stereo digital output coaxial</i>	Data format: SP-DIF, 0.5 Vss / 75 Ohms
<i>Surround digital output coaxial</i>	IEC 958 for CDDA / LPCM IEC1937 for MPEG 1, MPEG 2 and AC-3
<i>Surround digital output optical</i>	SP-DIF, <u>TOS-Link</u> , 660nm, -18 dB, leads up to 10 m in length
<i>Digital data format</i>	MPEG / AC-3 (digitally compressed) PCM 16, 20, 24 Bit / 44.1 kHz, 48 kHz
<i>Analogue output</i>	nom. 2,6 Veff / 22 Ohms
<i>TV standard</i>	625 (PAL, 50 Hz) 525 (NTSC, 60 Hz)
<i>Video format</i>	MPEG 1 für VCD MPEG 2 für DVD
<i>DVD resolution</i>	Horizontal 720 pixels Vertical 576 lines (50 Hz) / 480 lines (60 Hz)
<i>VCD resolution</i>	Horizontal 352 pixels

Vertical 288 lines (50 Hz) / 240 lines (60 Hz)

Video output 1.0 Vss / 75 Ohms

S-Video output Y = 1.0 Vss / 75 Ohms

C = 300 mVss (burst) / 75 Ohms

RGB (SCART output) 0.7 Vss / 75 Ohms

Analogue audio output 1.9 Veff / 450 Ohms

*Dimensions* 7,5 x 44 x 39 cm

*Remote control* Via R system or as non-standard version

*Colours* Black (RAL 9005), silver aluminium, chrome (Non-standard version)

*We reserve the right to alter technical specifications.*