

# 9 Channel Switch Interfaces for the Denon® V300/V310 player

## Technical Data

**DVD-D9CH interface**  
**DVD-D9DA interface**  
**DVD-D9RC(+) interface**

### Features

- Ultra low power consumption from the connected player
- Simple connection to Denon® V300/V310 player serial (RS232) port
- Four versions allow easy integration into most applications
- Screw terminals for quick connection to Normally Open (NO) switch contacts
- Anti-bounce on all switch inputs
- Enclosure lugs provide simple secure fixing

### Description

The DVD-D9 interfaces permit nine Normally Open (NO) momentary action switches the control of a Denon® V300/V310 player.

The DVD-D9 range emulate a standard external control device by issuing PlayC, PlayT and RC commands that control the action performed by the player.

The DVD-D9CH issues PlayC commands for DVD media, the DVD-D9DA issues PlayT commands for CD-DA & VCD media and the DVD-D9RC(+) issues cursor UP/DOWN (LEFT,RIGHT), ENTER and number buttons the same as the IR remote control.



DVD-D9CH shown

### Applications

The DVD-D9 range is primarily for use within a kiosk environment where input is required from the kiosk control buttons or from an Anti-Vandal button plate such as the DVD-nBUT. The devices are especially designed to connect to any type of momentary action switch and can therefore be used to control the DVD player in a number diverse applications.

Custom designed firmware is available for this product, please contact your distributor.

DVD ACCESSORIES

### Selection Guide

Description	Part Number
DVD control switch interface	DVD-D9CH
CD-DA/VCD switch interface	DVD-D9DA
Remote control switch interface	DVD-D9RC
Remote control switch interface +	DVD-D9RC+
Anti-Vandal buttons on metal plate	DVD-nBUT (n = number of buttons required 1-6)
External proximity detector	DVD-PRX (See DVD-PRX Technical Datasheet for more information)
Individually boxed product	Order Option #01 with the above referenced part number. The product is shipped in a box , including this DVD-D9 data sheet.

Note: All products are subject to availability; normal despatch is 10 working days following order date.

## Power requirements

The DVD-D9 range are powered from the serial port RTS line of the connected DVD player. The maximum current draw is 6mA without a DVD-PRX being connected.

## Switch Inputs

The DVD-D9 switch interface consists of a series of nine double terminal blocks to which any Normally Open (NO) momentary switch can be connected.

Contacts may be wired up to 50 metres away from the DVD-D9 without degrading the performance of the device.

## DVD-D9 interface

The DVD-D9 interface connection is a standard DB9 male as specified within the V300/V310 player specification.

Serial communication protocol is 9600 Baud, 1 Start bit, 8 Data bits, 1 Stop bits, No parity for all control

commands. All I/O is RS232 and TTL compatible.

## DVD control protocol

The DVD-D9 communicates with the player using the player control protocol \*\*. This protocol takes the form of ASCII command strings of format:

[PC,PlayC,1,1]\r  
or  
[PC,PlayT,1]\r  
or  
[PC,RC,44]\r

\r – Carriage return

These strings allow the PlayC (Play Chapter), PlayT (Play Title/Track) or RC (Remote control) commands to be issued to the player in response to an external button on the DVD-D9 being pressed.

See button function tables at the end

of the document for individual product output.

## DVD-D9 interface

Function	DB9 Male
RTS	8
RXD	3
TXD	2
Ground	5
All other connection are N/C	

## Electrical Characteristics (T<sub>A</sub> = 25°C Typical)

Parameter	Minimum	Maximum	Units	Notes
Supply Voltage (RTS)	4.5	9	V	
Supply Current	-	6	mA	1
Switch resistance	-	100	Ω	
Switch de-bounce time	-	50	mS	
RXData high level	GND	0.8	V	
RXData low level	2.4	VCC	V	
Terminal wire thickness	0.5	1.3	mm <sup>2</sup>	

## Absolute Maximum Ratings

Parameter	Minimum	Maximum	Units
Supply Voltage (RTS)	-0.5	+10	V

## Environmental

Parameter	Minimum	Maximum	Units
Operating Temperature	0	70	°C
Storage Temperature	-10	80	°C
Humidity	0	80	%
Dimensions	See below		
Weight	100g		
Immunity & emissions	EMC compliance to 89/336/EEC		

### Notes:

1. Value given does not include the power consumption of the external DVD proximity detector when connected.

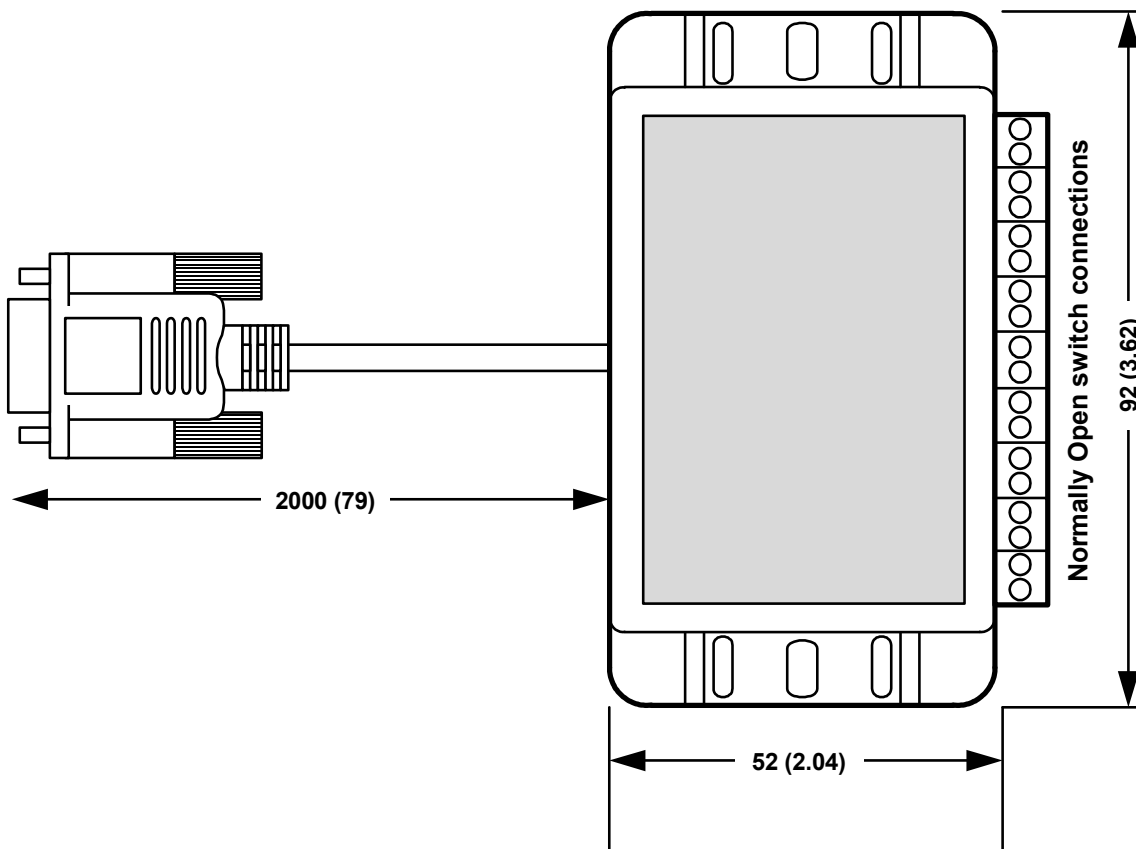
\*\* See Denon® V300/V310 technical specification for more information.

## DVD Media Authoring Notes

When authoring DVD media for use with the DVD-D9CH product the following requirements should be adhered to:

- a) The disc should be laid out as a single Title with Chapter marks at the head of each video clip to be selected with the DVD-D9CH.

## Mechanical Specifications – Units millimetres (inches)



## Installation

1. Ensure power to the Denon DN-V300/V310 player is switched OFF.
2. Insert the lead on the DVD-D9 into the I/O connector on the rear of the Denon DN-V300/V310 player and secure with the integral screw-locks.
3. Connect a Normally Open (NO) momentary action button across each of the inputs you wish to use (Note: each double terminal block is one input) using a pair of wires or multi-conductor cable to a maximum length of 50 metres using a small flat blade screwdriver.  
(NB. For a ready-made aluminium button plate with sealed anti-vandal buttons see the Designer Systems DVD-nBUT solution)
4. Site the DVD-D9 in a location that will not put undue strain on the terminals.
5. Switch ON the Denon DN-V300/V310 player and test by pressing each of the wired in buttons cross referencing with the table below. Should the installation not function, switch OFF immediately and check all connections.

**Button function table (DVD-D9CH)**

Switch input No.	Function
1	Play Chapter 1 on Title 1
2	Play Chapter 2 on Title 1
3	Play Chapter 3 on Title 1
4	Play Chapter 4 on Title 1
5	Play Chapter 5 on Title 1
6	Play Chapter 6 on Title 1
7	Play Chapter 7 on Title 1
8	Play Chapter 8 on Title 1
9	Play Chapter 9 on Title 1

**Button function table (DVD-D9DA)**

Switch input No.	Function
1	Play Track 1
2	Play Track 2
3	Play Track 3
4	Play Track 4
5	Play Track 5
6	Play Track 6
7	Play Track 7
8	Play Track 8
9	Play Track 9

**Button function table (DVD-D9RC)**

Switch input No.	Function
1	Button ENTER
2	Button arrow UP
3	Button arrow DOWN
4	Button 1
5	Button 2
6	Button 3
7	Button 4
8	Button 5
9	Button 6

**Button function table (DVD-D9RC+)**

Switch input No.	Function
1	Button ENTER
2	Button arrow UP
3	Button arrow DOWN
4	Button arrow LEFT
5	Button arrow RIGHT
6	Button 1
7	Button 2
8	Button 3
9	Button 4

**Notes:**

- The DVD-D9 range must NEVER be connected to voltage bearing circuits; damage to the unit and the Denon DN-V300/V310 player will result and will invalidate the Warranty.



**WEEE Consumer Notice**

This product is subject to Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste of Electrical and Electronic Equipment (WEEE) and, in jurisdictions adopting that Directive, is marked as being put on the market after August 13, 2005, and should not be disposed of as unsorted municipal/public waste. Please utilise your local WEEE collection facilities in the disposition and otherwise observe all applicable requirements. For further information on the requirements regarding the disposition of this product in other languages please visit [www.designersystems.co.uk](http://www.designersystems.co.uk)



**RoHS Compliance**

This product complies with Directive 2002/95/EC of the European Parliament and the Council of the European Union on the Restriction of Hazardous Substances (RoHS) which prohibits the use of various heavy metals (lead, mercury, cadmium, and hexavalent chromium), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).


**Declaration of Conformity**

**Apparatus name / model number** DVD-D9

**Conformity via** Generic Standard EN50081-1  
Generic Standard EN50082-1

**Conformity criteria** For use only within commercial, residential and light industrial applications

**We certify that the apparatus identified above conforms to the requirements of Council Directive 89/336/EEC & 73/23/EEC**

**Signed.**  **Date** 1/10/99

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**Manufacturer** Designer Systems, 15 Andrew Place, Truro, Cornwall TR1 3HZ, United Kingdom

**Description of apparatus** DVD control device

Having made this declaration the CE mark is affixed to this product, its packaging, manual or warranty.

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