

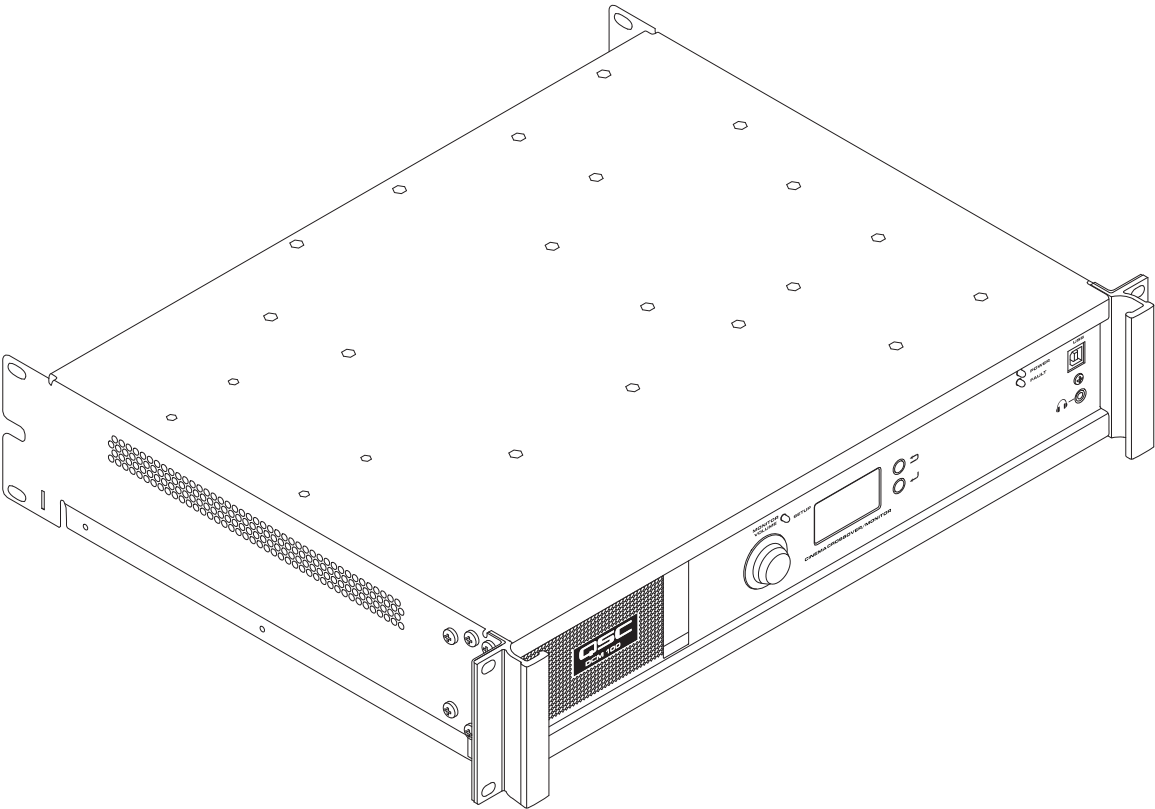
# Cinema Crossover/Monitor **QSC**

## User Manual

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DCM 100

DCM 300



TD-000517-01-A



## EXPLANATION OF TERMS AND SYMBOLS

The term "**WARNING!**" indicates instructions regarding personal safety. If the instructions are not followed the result may be bodily injury or death.

The term "**CAUTION!**" indicates instructions regarding possible damage to physical equipment. If these instructions are not followed, it may result in damage to the equipment that may not be covered under the warranty.

The term "**IMPORTANT!**" indicates instructions or information that are vital to the successful completion of the task.

The term "**NOTE**" is used to indicate additional useful information.



The intent of the lightning flash with arrowhead symbol in a triangle is to alert the user to the presence of un-insulated "dangerous" voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The intent of the exclamation point within an equilateral triangle is to alert the user to the presence of important safety, and operating and maintenance instructions in this manual.



### IMPORTANT SAFETY INSTRUCTIONS



**WARNING!:** TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

**Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than room ambient. Consideration should be given to ensure that the maximum operating temperature range (0°C to 50°C (32°F to 122°F ) is not exceeded.

**Reduced Air Flow** – Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Do not submerge the apparatus in water or liquids.
7. Do not use any aerosol spray, cleaner, disinfectant or fumigant on, near or into the apparatus.
8. Clean only with a dry cloth.
9. Do not block any ventilation opening. Install in accordance with the manufacturer's instructions.
10. Keep all ventilation openings free of dust or other matter.
11. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
12. To reduce the risk of electrical shock, the power cord shall be connected to a mains socket outlet with a protective earthing connection.
13. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
14. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
15. Do not unplug the unit by pulling on the cord, use the plug.
16. Only use attachments/accessories specified by the manufacturer.
17. Unplug this apparatus during lightning storms or when unused for long periods of time.
18. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
19. The appliance coupler, or the AC Mains plug, is the AC mains disconnect device and shall remain readily accessible after installation.
20. Adhere to all applicable, local codes.
21. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.

## Maintenance and Repair



**WARNING!:** Advanced technology, e.g., the use of modern materials and powerful electronics, requires specially adapted maintenance and repair methods. To avoid a danger of subsequent damage to the apparatus, injuries to persons and/or the creation of additional safety hazards, all maintenance or repair work on the apparatus should be performed only by a QSC authorized service station or an authorized QSC International Distributor. QSC is not responsible for any injury, harm or related damages arising from any failure of the customer, owner or user of the apparatus to facilitate those repairs.

## FCC Statement



**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## RoHS STATEMENT

The QSC Cinema Crossover / Monitor is in compliance with European Directive 2011/65/EU – Restriction of Hazardous Substances (RoHS2).

The QSC Cinema Crossover / Monitor is in compliance with “China RoHS” directives. The following chart is provided for product use in China and its territories:

DCM 100, DCM 300 Cinema Crossover / Monitor						
部件名称 (Part Name)	有害物质 (Hazardous Substances)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(vi))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电路板组件 (PCB Assemblies)	X	O	O	O	O	O
机壳装配件 (Chassis Assemblies)	X	O	O	O	O	O

本表格依据 SJ/T 11364 的规定编制。

O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

(目前由于技术或经济的原因暂时无法实现替代或减量化。)

This table is prepared following the requirement of SJ/T 11364.

O: Indicates that the concentration of the substance in all homogeneous materials of the part is below the relevant threshold specified in GB/T 26572.

X: Indicates that the concentration of the substance in at least one of all homogeneous materials of the part is above the relevant threshold specified in GB/T 26572.

(Replacement and reduction of content cannot be achieved currently because of the technical or economic reason.)

## Warranty

For a copy of the QSC Limited Warranty, visit the QSC, LLC., website at [www.qsc.com](http://www.qsc.com)

Para una copia de la Garantía Limitada de QSC, visite el sitio web de QSC, LLC., en [www.qsc.com](http://www.qsc.com)

Pour obtenir une copie de la garantie limitée de QSC, visitez le site de QSC, LLC. à [www.qsc.com](http://www.qsc.com)

Besuchen Sie die Webseite von QSC, LLC. ([www.qsc.com](http://www.qsc.com)) um eine Kopie der beschränkten Garantie von QSC zu erhalten.

如果您想要QSC有限保修的複印本, 請造訪QSC音頻產品的網站[www.qsc.com](http://www.qsc.com)

Для получения копии ограниченной гарантии QSC посетите веб-сайт QSC, LLC., расположенный по адресу [www.qsc.com](http://www.qsc.com).

للحصول على نسخة من الضمان المحدود الخاص بـQSC، قم بزيارة الموقع الإلكتروني لشركة QSC للمنتجات الصوتية على [www.qsc.com](http://www.qsc.com)

QSC限定保証の複製には、QCSのウェブサイト[www.qsc.com](http://www.qsc.com)にアクセスしてください。

## Features

- Analog inputs accept audio from cinema processors
- QSC Intrinsic Correction™ settings for optimal performance of QSC cinema loudspeakers
- Booth monitor with front panel control for easy operation
- Passive or 2-way crossovers for three screen channels (DCM 100)
- 3-way or 4-way crossovers for three screen channels (DCM 300)
- Compatible with all existing QSC DCA amplifiers
- Bypass mode – routes audio around failed components to ensure that the show will go on.
- Control and monitoring via Ethernet including full SNMP support.
- Continued development of software and firmware will add new capabilities via easy updates

Format	DCM 100	DCM300
6/8 Channel (5.1, 7.1) Passive (3 Screen Channels)	Yes	Yes
6/8 Channel (5.1,7.1) Bi-Amp (3 Screen Channels)	Yes	Yes
6/8 Channel (5.1,7.1) Tri-Amp (3 Screen Channels)	No	Yes
6/8 Channel (5.1,7.1) Quad-Amp (3 Screen Channels)	No	Yes

— Table 1 — Supported Formats by Model

## Package Contents

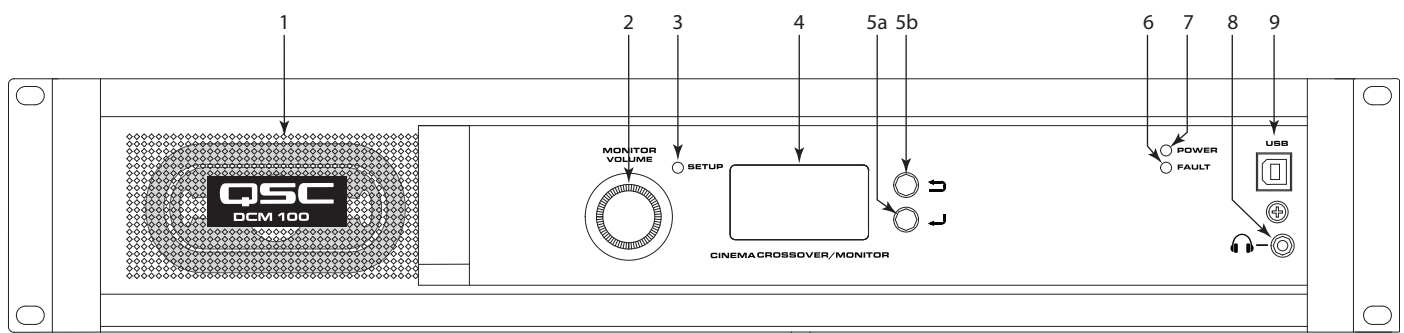
1. DCM 100 or DCM 300
2. User Guide
3. IEC power cord
4. Euro style connector plug kit
5. Limited Warranty TD-000453-01

## Rack Mounting

The DCM is designed to be mounted in a standard 19" (480 mm) equipment rack and requires 2 vertical rack spaces. Mount the DCM using four screws and washers. Tighten securely. The DCM comes with rear rack support ears. Make sure that the rear mounting points are securely fastened to rear rack rails or rack side walls.

## Controls and Connectors

### Front Panel Features

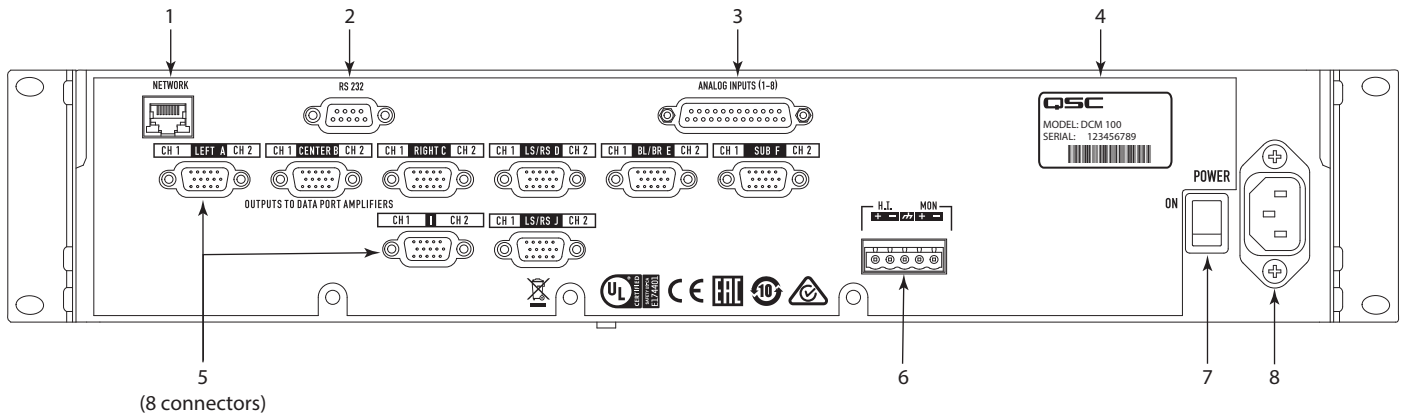


— Figure 1 —

1. **Monitor Loudspeaker** – full-range
2. **MONITOR VOLUME** – and parameter-adjust control (function depends on operating mode)
  - a. Monitor mode – controls level to DCM front panel loudspeaker
  - b. Setup mode – provides parameter adjustment
3. **SETUP** mode LED – illuminates yellow when DCM is in setup mode
4. **LCD** – monochrome display, 128 x 64 bit
5. Navigation
  - a. ← – Press to navigate to a lower level menu or edit a parameter
  - b. → – Press to navigate to a higher level menu
6. **FAULT** LED – illuminates yellow when load faults or system errors are detected
7. **POWER** LED – illuminates green when AC power is applied
8. 🎧 – Headphone jack (3.5 mm TRS) for attaching external powered monitor loudspeaker or headphones (automatically mutes the built-in loudspeaker)
9. **USB** Type B port for DCM configuration and management via direct connection

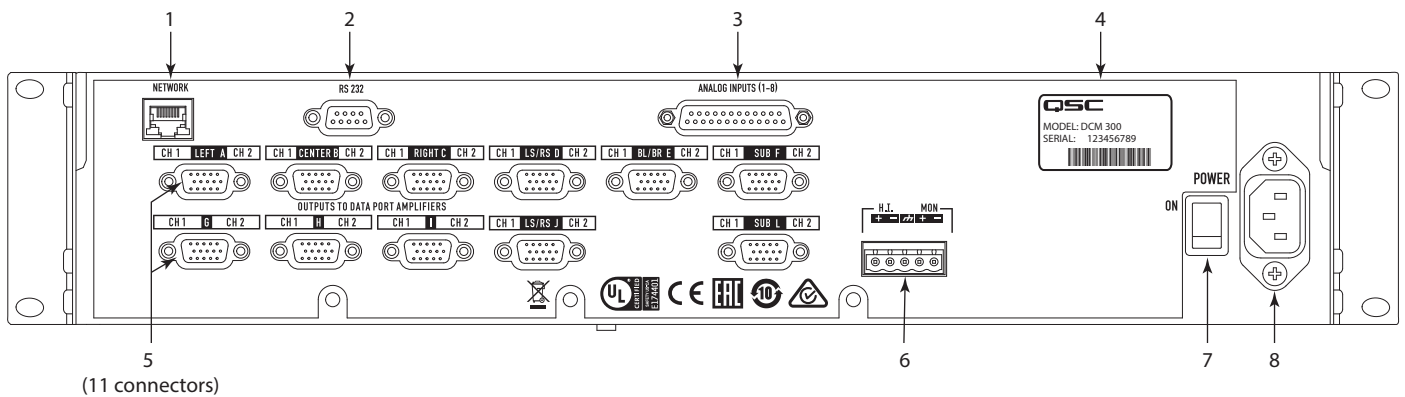
# Rear Panel Features

## DCM 100



— Figure 2 —

## DCM 300



— Figure 3 —

1. **NETWORK** (RJ45) – 10/100 Mbps Ethernet port for DPM Manager, 3rd-party, or SNMP management and remote access.
2. **RS 232** – Serial communications port (RS232) – 3rd party control/automation
3. **ANALOG INPUTS**, audio (DB-25) – connect to D-Cinema server or film processor with analog outputs
4. **MODEL** and **SERIAL** number
5. **DataPort** interface for QSC amplifiers – DCM 100 supports up to 8 single-port amplifiers, DCM 300 supports up to 11 single-port amplifiers.
6. **HI MON** – Hearing Impaired and monitor outputs
7. **POWER ON / OFF** switch
8. **IEC** inlet – AC mains power connector with cord lock

## DPM Manager

DPM Manager is used to configure and manage your DCM and to configure the network settings if required.

Your computer must meet the following minimum requirements:

1. Computer with Windows® 7, 8, or 10 OS (32 or 64 bit) or MAC OS 10.9.5 or higher
2. 4 GB of RAM or greater
3. Display resolution of at least 1024 x 768

## Setup Overview

Initial configuration of the DCM is performed through QSC's DPM Manager software, which must be installed on a Windows® or MAC computer. Once the software is installed, the computer can then be connected to the DCM via a USB or Ethernet connection.



**NOTE:** Adjustment of system parameters, such as monitor levels and monitor tap points, can be made through the front panel user interface.

The Setup Overview on the following pages is a general application guide showing the installation steps required for a basic system. Refer to the Help Files in DPM Manager for detailed setup and configuration instructions and for system examples. The QSC Cinema Products web pages are also a good source of information for application notes and system design assistance.

The following assumes that the DCM has been unpacked and mounted.

1. Install the Software – Download the DPM Manager installation file from the QSC website and open file to install.
2. Attach the Amplifiers – Connect DataPort™ outputs on the DCM rear panel to DataPort™ inputs on QSC's DCA or PL3 Series amplifiers using QSC approved DataPort™ cables.
3. Connect the Audio – Connect cinema audio sources to the DCM rear panel Analog Input connector. Connect the Hearing Impaired Monitor mix outputs to appropriate external devices as needed.
4. Configure the DCM – After DPM Manager is installed, connect a USB cable between the DCM and the computer. Turn the DCM on, launch DPM Manager and follow the prompts on screen. Refer to the Help Files for instructions on how to configure the basic operating parameters of the DCM.
5. Tune System – Once the basic DCM operating configuration is defined and all of the connections are in place, it's time to power up the rest of the equipment, complete the DSP setup, tune the system and run through final check.

Refer to additional information in this User Manual and in the software Help Files for additional setup and configuration details to complete this step.

## Configuration and Networking

The DCM offers a variety of options for configuring and managing the product and an entire cinema sound system locally or remotely. Local DCM configuration and system management are provided through directly applied connections to the DCM via universal serial bus (USB), the DCM front panel LCD and buttons or through a local Ethernet link. Remote and system-wide management are possible through more sophisticated network implementations and/or via wide area network (WAN) topologies, Internet access or 3rd party subscription services that make use of the DCM third-party API or SNMP.

Basic configuration of the DCM product is performed through the USB interface on the product front panel or via the Ethernet connection on the rear panel. The system designer connects to the DCM's USB port with a Windows or MAC laptop or PC running the DCM Manager software application. DCM Manager offers all the setup tools and system management objects to configure the DSP signal path, apply crossovers, EQ etc., define the routing of audio to the amplifiers, define the system speakers and speaker processing etc.

In addition to basic configuration, DPM Manager can be used to monitor health, status, and performance of the system via the product's USB or Ethernet interface.

## Configuring the DCM

DPM Manager is used to configure the DCM product. This includes configuring the device properties, the DSP objects, audio and control I/O and Presets. The network communications properties must be configured using DPM Manager over USB so that all networking properties are in place before the DCM is added to a local area network (if your deployment requires networking).

Once the DCM product is configured, DPM Manager can then be used to manage one or more DCM products over a local area network. Alternately, an SNMP-based management system may be used to monitor and control the DCM.

Refer to the information in the DPM Manager Help for additional information on product configuration, management and network connectivity.

# Connections

## AC Power Cord

Connect the AC power cord into the AC power inlet on the back of the DCM. Plug the AC line connector into an AC outlet. The power supply on the DCM accepts from 100 – 240V, 50 to 60 Hz. If a different type of IEC power cord is required, consult QSC’s Technical Services Group.

## Network

Figure 2 item 1 is used to connect the DCM to a network switch to allow setup, control and monitoring over Ethernet. Connect one end of a data communications cable terminated with an RJ45 plug into the Ethernet receptacle on the rear panel of the DCM. Ensure that the lock tab on the cable engages with the RJ45 receptacle on the DCM.



**NOTE:** The data communications cabling must be rated CAT-3 or better for 10 Mbps network connections or rated CAT-5 or better for 100 Mbps network connections.

## Hearing and Monitor Outputs

The Hearing Impaired and Monitor outputs are balanced outputs that are combined into a single 5-terminal Euro style receptacle. This combo receptacle includes a common ground for both the HI and Monitor outputs. Terminate the mating 5-terminal Euro plug and insert it into the DCM rear panel receptacle as shown in the image to the right. The DCM rear panel label provides a pin-out of the receptacle signals. A standard 3-terminal Euro style plug may be used if only one output is required.

## DataPorts

QSC DataPort connectors on the DCM rear panel interface with QSC amplifiers having v1 DataPorts. These DataPorts are included on DCA and PL3 series amplifiers. All DataPorts use a HD15 connector and connect to QSC amplifiers using HD15 male to HD15 male data communications cables. Connect the DataPort cables between the DCM DataPorts and the amplifier DataPorts. Finger-tighten the thumb screws on the connectors.



**NOTE:** The DataPort cables use the same connector format as VGA cables. Some off-the-shelf VGA cables may work with satisfactory results, however, not all will. To make sure the system operates correctly, only QSC supplied DataPort cables should be used. A variety of lengths are available through QSC’s Technical Services Group.

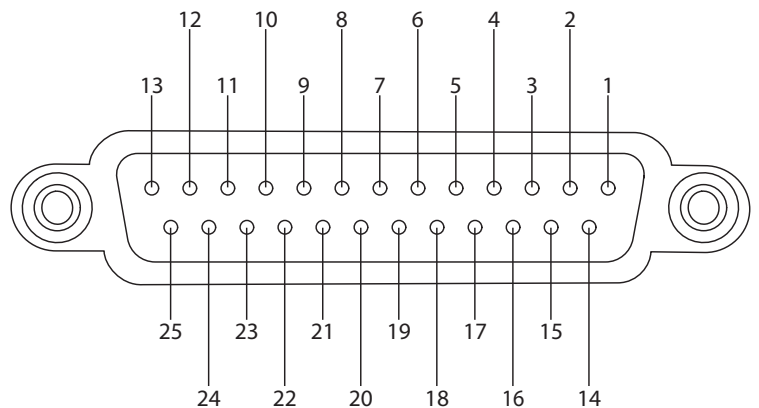
## USB Interfaces

Figure 1 item 9 illustrates the front-panel USB Type B port provided for directly connecting to a computer. All configuration and local management of the DCM via DPM Manager software can be performed through this portal. The USB Type B is a standard cable.

## Analog Inputs (1-8) Connector Pinout

25-pin female

Pin #	Description	Pin #	Description
1	Chassis ground	14	Left -
2	Left +	15	Chassis ground
3	Left extra -	16	Left extra +
4	Chassis ground	17	Center -
5	Center +	18	Chassis ground
6	Right extra -	19	Right extra +
7	Chassis ground	20	Right -
8	Right +	21	Chassis ground
9	Chassis ground	22	Chassis ground
10	Surround left -	23	Surround left +
11	Surround right -	24	Surround right +
12	Subwoofer -	25	Subwoofer +
13	Chassis ground	Shell	Chassis ground



— Figure 4 —



# Specifications

The following specifications are based on the DCM 300. The DCM 100 varies only in quantity of connectors. Refer to the individual sections in this document for more information.

Parameter	Specification
<b>Front Panel Controls and Indicators</b>	
Monitor Volume/parameter adjust	Rotary encoder
Setup mode indicator	Yellow LED
LCD	128 x 64 bit Monochrome LCD
Power on indicator	Green LED
Fault detect indicator	Yellow LED
USB Type B port	Config and management interface
Monitor output	3.5 mm TRS
<b>Rear Panel Connectors</b>	
Network RJ45	10/100 Mbps network management
RS232	DB-9 Serial Interface
Analog Inputs (1-8)	DB-25
DataPort connectors	HD-15 – DCM 100 - 8 / DCM 300 - 11
H.I./Monitor outputs	5-pin Euro-style (x1) – common GND
Power switch	Rocker switch
<b>Monitor Speaker</b>	
Speaker	2"x 3.5" full-range
Impedance	4 Ω
Amplifier output power	10 watts Class D
Frequency response	20 Hz – 20 kHz (± 2 dB)

## Analog Inputs/Outputs

<b>General Audio Performance Requirements</b>	
A/D conversion	24-bit delta-sigma, 48 kHz
Frequency response:	20 Hz to 20 kHz (+- .5dB)
<b>Main Analog Input (DB25F - 8 channel)</b>	
Active balanced input	
Input impedance:	20k Ohm
Max analog input level:	+14.2 dBu (4.0 Vrms)
Dynamic range (unweighted):	> 106 dB
Dynamic range (A-weighted):	> 108 dB
THD+N at 2 dB below clip:	< 0.003%
<b>DataPort Outputs (HD15)</b>	
Max output level:	14 dBu
Dynamic range (unweighted):	> 109 dB
THD+N at 2dB below clip:	<.002 %

Parameter	Specification
<b>H.I./Monitor Outputs (5-pin Euro-style with common GND)</b>	
Balanced output	
Max output level:	18 dBu (adjustable)
Dynamic range (unweighted):	> 109 dB
THD+N at 2dB below clip:	<.002 %
<b>Monitor Headphone Output (Front Panel 3.5mm minijack)</b>	
Unbalanced output	
Max output level:	21 dBu
Dynamic range (unweighted):	> 109 dB
THD+N at 2dB below clip:	<.025 %

## Other

Line voltage requirements	100 VAC – 240 VAC, 50/60 Hz
Dimensions (H/W/D):	3.5"(2 RU) x 19" x 15"
Accessories included	6 ft UL/CSA line cord, Connector Kit
<b>Network / SNMP</b>	
Protocol	Standard TCP/IP implementation over Ethernet or Fast Ethernet. 3rd party interface may use UDP/ IP or TCP/IP.
Data rate	10/100 Mbps
Connection requirements	CAT-5 UTP cable or better (100m maximum length), direct connection to wired network switch ports only, dedicated LAN or VLAN

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