

QSC's Digital Cinema Monitors provide signal processing and monitor functions in a single integrated system. Designed to be used with QSC's Digital Cinema Amplifiers (DCAs), DCMs optimize loudspeaker performance while simplifying cinema sound system wiring and configuration. The DCM-1 and DCM-3 cover cinema systems ranging from three to five screen channels, and is configurable for bi-amp or tri-amp operation. DCMs are also compatible with all cinema processor formats including Dolby Digital Surround-EX and DTS-ES.

### Digital Signal Processing

The DCM's digital signal processing capability outperforms traditional analog crossovers for optimized speaker performance. Crossover frequency, parametric equalization, polarity and gain can be precisely adjusted for each speaker in your system. Digital delays, adjustable in 20  $\mu$ s increments, assure proper acoustical time-alignment of loudspeaker drivers for smooth frequency response, especially critical in three-way systems. A passive emergency bypass crossover is also included for fail-safe operation.

### Less wiring, faster setup

DCMs greatly simplify system wiring and set-up, significantly reducing installation time and labor cost. Input to the DCM is provided via a standard DB-25 cable from the cinema processor. Connections to DCA amplifiers for input and monitor signals are made through a single QSC DataPort / VGA-style cable. All traditional XLR and barrier strip terminations are eliminated.

DCMs also simplify set-up by using a menu-driven, PC-based software program for configuration. The program includes a speaker data file that lists default parameters for popular cinema speaker models. Commonly used configurations can also be saved on a disk, allowing you to quickly load them on other DCMs.

### Advanced Monitor Functions

In addition to audio monitoring of amplifier inputs and outputs, DCMs include QSC's exclusive "load fault" detection. DCMs monitor all amplifier outputs and indicate opens and shorts in the speaker system and wiring via LED "load fault" indicators, providing confirmation that all amplifiers outputs are functioning properly.



### Features

- Provides Monitor and Crossover functions in one box
- Digital Signal Processing for State-of-the-art sound quality (high dynamic range)
- Fast system setup time (especially in megaplexes with similar rooms)
- Simple connections with QSC DataPort connectivity. Only one cable per amplifier needed (contains two signal inputs, two signal returns, power on/standby control and two channels of load monitoring)
- Exclusive "Load Fault" detection indicates speaker system or wiring faults
- Simple crossover adjustments via PC with password control for tamper proof system adjustments
- Lower system cost than existing tri-amp solutions
- Compatible with all current sound formats; 3-5 screen channels, 5.1 - 7.1
- 3 year warranty plus optional 3 year extended service contract

The QSC DCM acts as the interface between a cinema film audio processor and the power amplifiers in a bi-amp or tri-amp cinema sound system. The DCM performs two major functions: automatic and manual monitoring of processor and amplifier signals, and fully programmable crossover/EQ filtering.

Dimensions (HWD):	5.25" x 19" x 14"
Line Voltage Requirements:	85 VAC - 260 VAC, 50/60 Hz
Accessories Included:	(1) 6 ft. (2m) UL/CSA line cord (1) User Manual (1) Software Diskette, 3.5" HD

#### Front Panel Controls

Power Switch:	(1) Rocker Switch
Monitor Mode Select:	(1) Momentary Push Button
Monitor Channel Select:	(6 or 8) Momentary Push Button
Monitor Volume:	(1) Rotary Potentiometer
Test Lead Connections:	(2) Test Point Jacks
Bypass Mode Select Switch:	(1) Slide Switch
Diagnostics Button:	(1) Momentary Push Button
Indicators:	
Power Indicator:	(1) Green LED
Monitor Mode Indicators:	(1) Green LED and (1) Yellow LED
Processor Channel Indicators:	(6 or 8) Green LEDs
Amplifier Channel Indicators:	(13 or 20) Yellow LEDs
Load Fault Indicator:	(1) Red LED
Clip Indicator:	(1) Red LED

#### Rear Panel Controls

Bypass Crossover Level:	(2 or 3) Rotary Trimpots
Surround EX Mode Switch:	(1) Slide Switch
Rear Panel Control Connectors:	
Input:	(1) 25-pin female D-sub connector
Amplifier DataPorts:	(8, 11 or 15) 15-pin female high-density D-sub connectors
RS232 Serial Port:	(1) 9-pin female D-sub connector
Powered Sub/Hearing:	
Impaired Output:	(1) 6 terminal screw-terminal connector
Surround EX Insert Point:	(1) 9-pin male D-sub connector
AC Power Inlet:	(1) IEC style with fuse

#### DCM Inputs

Screen Channels and Subwoofer:	
Input Stage Type:	Active Balanced
Input Impedance:	20k ohms
Maximum Input Level (Screen channels):	+14.2 dBu (4.0 Vrms)
Maximum Input Level (Subwoofer channels):	+18.2 dBu (6.4 Vrms)
A/D Conversion (Screen channels only):	24 bit delta-sigma 128x oversampled
Surround Channels:	Hardwire pass-through to DataPort outputs (via Surround-EX Insert)

#### Dataport Outputs

Screen Channels:	
Output Attenuation Steps:	0 dB to -18 dB in 0.1 dB steps
Dynamic Range:	99 dB
THD+N 20 Hz-20 kHz, +12 dBu	
Input Level, All Filters Flat:	0.02%
Frequency Response:	20 Hz - 20 kHz (no filtering)
D/A Conversion:	24 bit delta-sigma 128x oversampled
Filter Topology:	24 bit digital IIR filters

Crossover Filters:	Linkwitz-Riley 24 dB/octave digital filters programmable in approx. 1 Hz steps from 150 Hz - 15 kHz
Parametric EQ:	Digital bandpass constant Q filter with $\pm 10$ dB of boost/cut programmable in approx. 1/10 octave steps from 80 Hz -15 kHz. Q is programmable in 1/10th octave steps from 1/10 to 2 octaves.
CD Horn EQ:	Available on high frequency outputs only
Screen EQ:	Available on high frequency outputs only
Delay:	Programmable in 21 $\mu$ s steps from 0 to 21 ms per output
Polarity:	Normal, Inverted
Mute:	Individual mutes on each screen channel output
Subwoofer:	
Output Stage Type:	Single ended (balanced impedance)
Output Attenuation Steps:	0 dB to -18 dB in 3 dB steps
Dynamic Range:	99 dB
THD+N 20 Hz-20 kHz, +12 dBu	
Input Level, All Filters Flat:	0.02%
Filter Topology:	Digitally controlled analog on DCM-1, DSP on DCM-3
High Pass Filter:	Linkwitz-Riley 12 dB/octave filter. Q can be programmed as 0.707 or 2, flat or "step-down" operation
Mute:	One mute for all subwoofer outputs
Surround Channels:	Hardwire pass-through from processor input via Surround Insert
Output Channels (using the Surround Insert connector):	2 or 3 selectable on rear panel

#### Amplifier A.C. Control

*all amps power on with DCM activation*

#### Emergency Bypass Crossover

Filter Type:	1st order Butterworth, 2 or 3 way
Attenuation Range (trimpot):	-6 dB to -24 dB

#### Powered Subwoofer Output

Output Stage Type:	Single ended (balanced impedance)
Output Impedance:	50 $\Omega$
Maximum Output Level:	+14.2 dBu (4.0 Vrms)
Loading Requirements (total of remote & dataport connection):	$R_{MIN} = 2k$ ohms $C_{MAX} = 4$ nF

#### Hearing Impaired Output

Output Stage Type:	Single ended (balanced impedance)
Output Impedance:	50 $\Omega$
Nominal Output Level:	-11.8 dBu (200 mVrms)
Loading Requirements:	$R_{MIN} = 2k$ ohms $C_{MAX} = 4$ nF

#### Surround Insert I / O

Output Stage Type:	Hardwired connection to processor input connector
Input Stage Type:	Hardwired connection to DataPort output connector

#### Monitor Speaker

Dimensions:	4-inch full range driver
Amplifier Output Power:	10 watt class AB amplifier
Frequency Response:	100 Hz - 8 kHz ( $\pm 2$ dB)
Dynamic Processing:	1.5:1 compression

Specifications subject to change without notice.